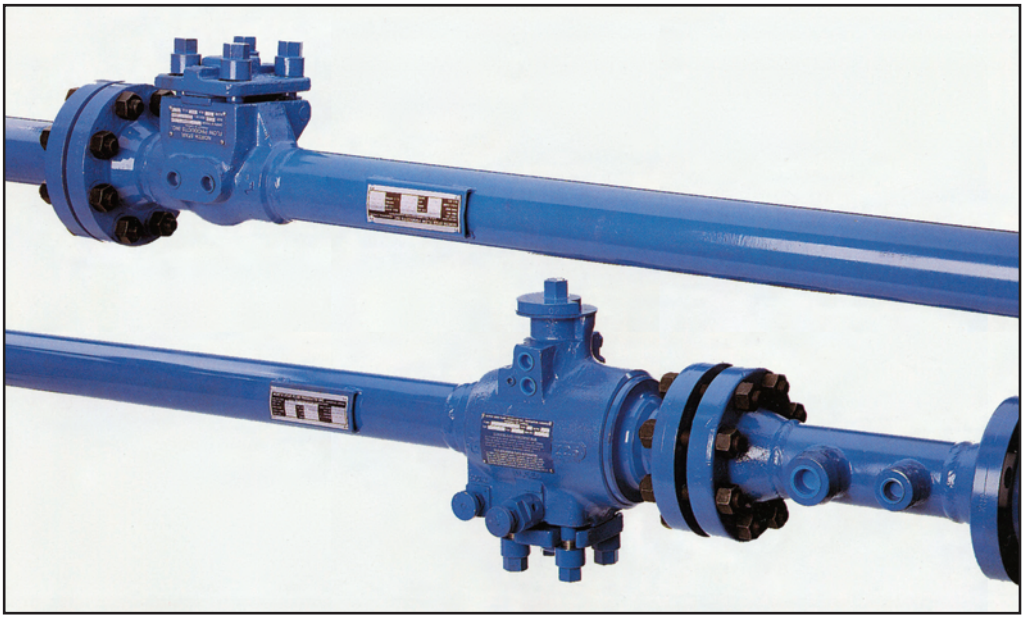
NuFlo

NuFlo™

Orifice Fittings and Equipment

User Manual

Dual Chamber Orifice Fittings • Single Chamber Orifice Fittings
Orifice Flange Unions • Orifice Plates • Orifice Meter Runs



Sold as North Star Flow Products in Canada

NuFlo *Measurement Systems*
A NuFlo Technologies Company

Manual No. 25165001, Rev. A

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Manual No. 25165001, Rev. A
November 2004

Table of Contents

Dual Chamber Orifice Fittings

Features and Specifications 1
Installation, Maintenance, and Operation 3
Composite Drawing, 2” and 3” with Internal Ball-Stop 4
Composite Drawing, 4” with Internal Ball-Stop 5
Parts List, 2”, 3” and 4” with Internal Ball-Stop 6
Composite Drawing, 6” with Internal Ball-Stop 8
Parts List, 6” with Internal Ball-Stop 9
Dimensional Data, 2”and 3” Orifice Fittings 11
Dimensional Data, 4” Orifice Fittings 12
Dimensional Data, 6” Orifice Fittings 13
Redress Kits and Recommended Spare Parts 18

Single Chamber Orifice Fittings

Features and Specifications 19
Installation, Maintenance, and Operation 19
Composite Drawing, 2”, 3” and 4” 21
Parts List, 2”, 3” and 4” 22
Dimensional Data, 2”, 3” and 4” 23

Meter Runs

Specifications 27
Orifice Flange Unions 29
Paddle Type Orifice Plates 29
Orifice Plate Assembly 30
Straightening Vanes 31
AGA/API Meter Run Lengths 32
Data Requirements for Orifice Bore Calculations 33
Meter Run Ordering Forms 34
Materials Lists 37

Model 4055 Dual Chamber Orifice Fittings

NuFlo Model 4055 Dual Chamber Orifice Fittings are compact, streamlined and rugged featuring a simple and rapid method for changing or inspecting orifice plates under pressure. The orifice fittings feature a ball-type construction for opening and closing "without" a complicated gear mechanism.

The unique construction incorporating a ball closure with spring-loaded, self-lubricating, Moly-filled Teflon® floating seals eliminates any need for periodic lubrication. All NuFlo dual chamber orifice fittings are manufactured in accordance with ANSI and ATSM standards and available in 2", 3", 4" and 6" sizes.

Features

- Compact construction
- Rapid method for changing orifice plates under pressure
- Self-lubricating Moly-filled Teflon® seals (periodic lubrication not required)
- Orifice plate O-ring seal provides positive seal around orifice plate
- Positive orifice plate alignment assured with closure of chamber lid and internal ball stop

Standard Specifications

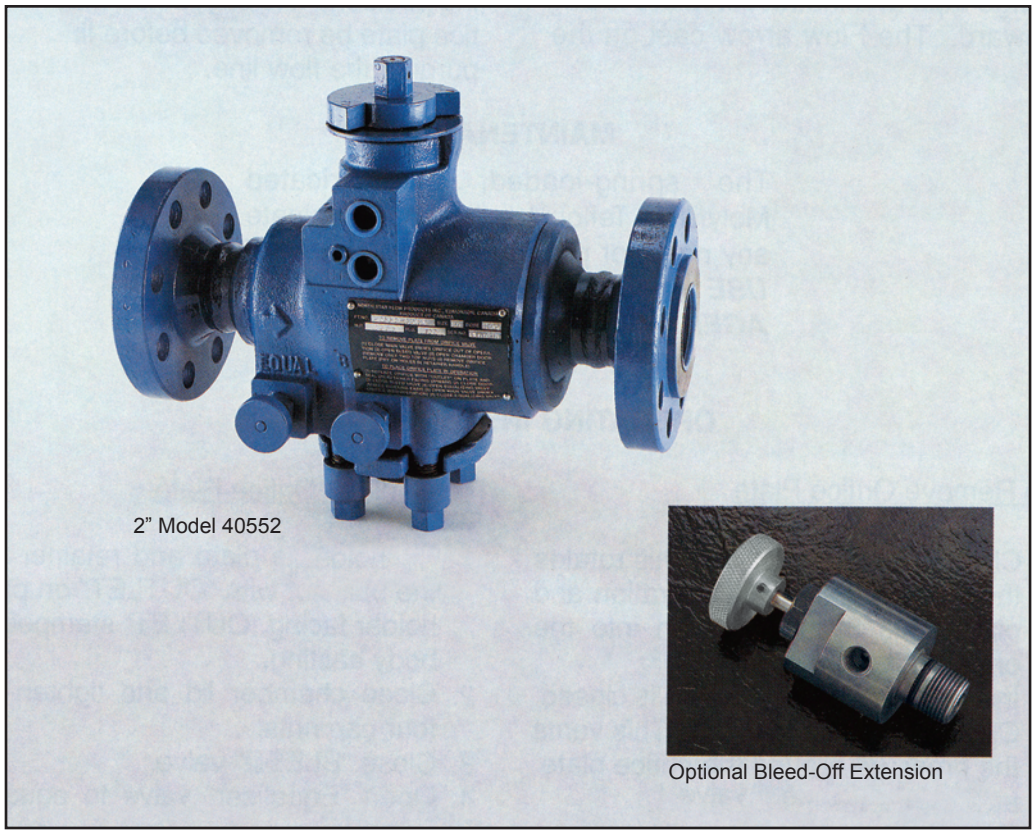
Meter Connections: All NuFlo orifice fittings are provided with two sets of flange taps located 1" on each side of the orifice plate. Flange tap meter connections are 1/2" NPT, internal tap hole sizes follow latest AGA/API recommendations. Internal edges of tap holes are free from burrs and slightly rounded.

Two types of NuFlo orifice fittings are available:
- Flanged Type, either raised face or ring joint
- Flangeweld Type, having a weldneck inlet and a flanged outlet

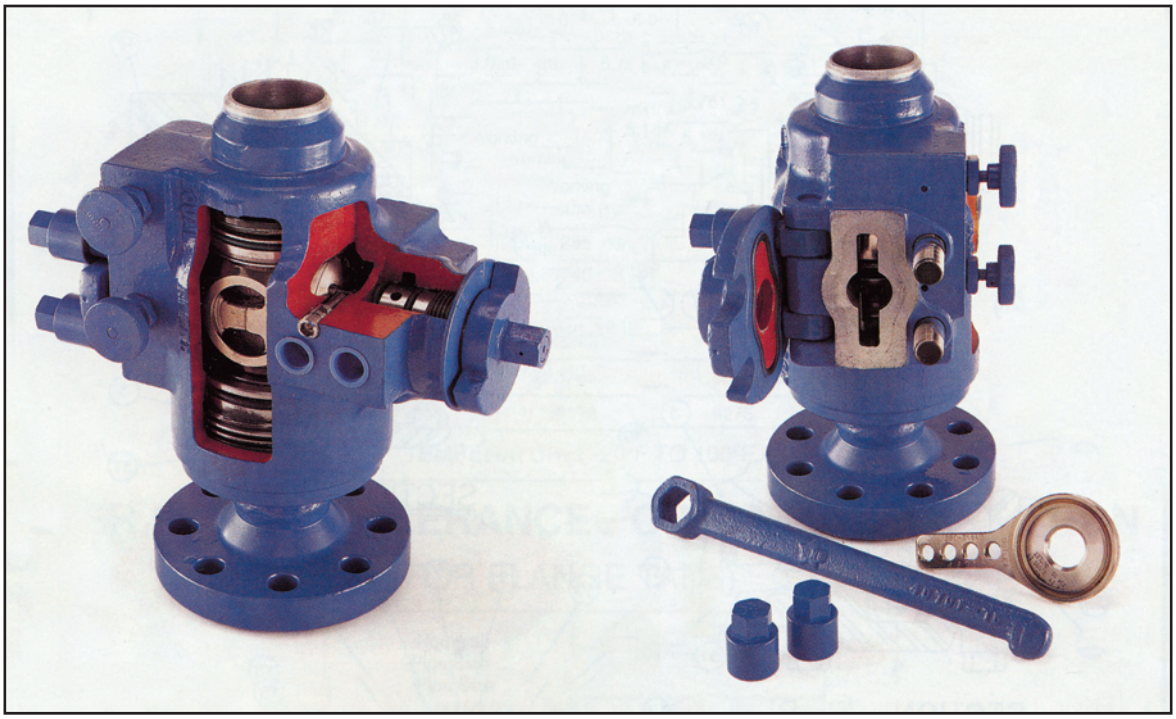
When Ordering, Specify:

- Quantity
- Assembly part number
- Type of dual chamber orifice fitting (flanged, flangeweld)
- Service (sweet, (H_2S) sour)
- Flange rating
- Flange type (raised face, ring type joint)
- Pipe schedule
- Orifice plate bore size(s)

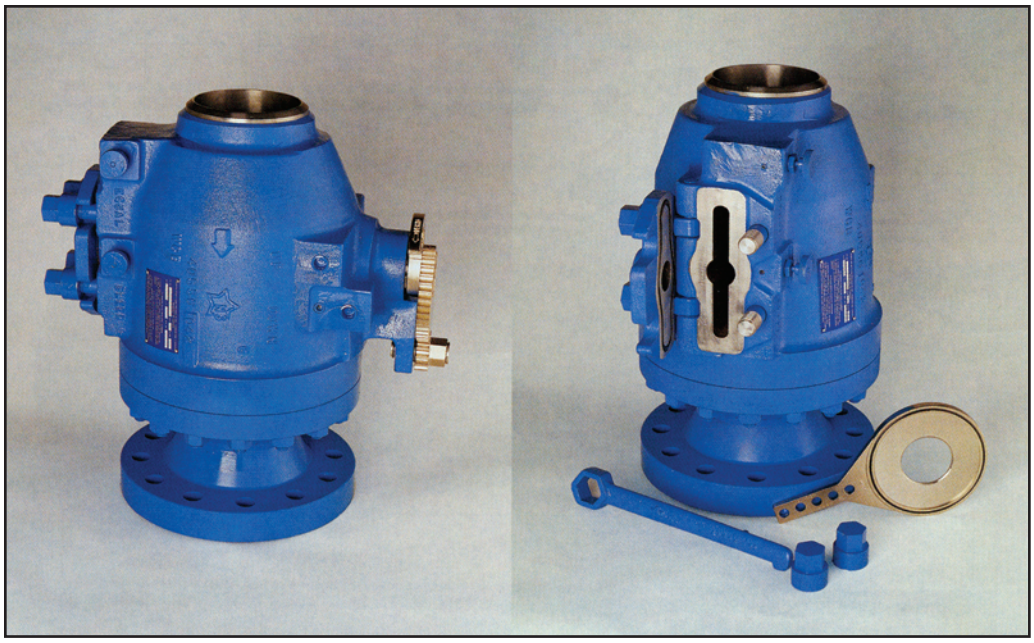
ORIFICE FITTING SIZES	2"	3"	4"	6"
ASSEMBLY PART NUMBER	40552	40553	40554	40556
ANSI FLANGE PRESSURE RATINGS	150 THROUGH 1500	150 THROUGH 1500	150 THROUGH 1500	150 THROUGH 600
INTERNAL DIAMETERS	SCH 40 THROUGH SCH 160	SCH 40 THROUGH SCH 160	SCH 40 THROUGH SCH 160	SCH 40 THROUGH SCH 80



Dual chamber orifice fitting, flanged type



Cut-away, dual chamber orifice fitting, flangeweld type (2, 3 and 4 in.)



Dual chamber orifice fitting, flangeweld type (6 in.)

Installation and Maintenance

It is recommended that the NuFlo Dual Chamber Orifice fitting be placed in the line with the two 1/2" NPT flange taps and instruction plate facing upward. The flow arrow cast on the body must correspond with flow direction of line. The orifice fitting is shipped with an orifice plate installed in operating position. It is suggested that the orifice plate be removed before flushing or purging the flow line.

The spring-loaded, self-lubricated Moly-filled Teflon® ball seals eliminate any need for periodic lubrication. ***Grease is not required for sealing.***

Operating Instructions

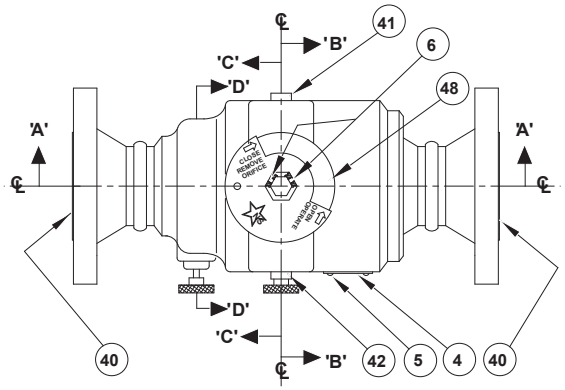
Removing an Orifice Plate

1. Close main orifice fitting. This rotates the orifice plate out of operation and places the bypass section into the orifice fitting bore.
2. Insure "EQUALIZER" valve is closed.
3. Open the "BLEED" valve. This vents the pressure around the orifice plate and chamber lid.
4. Open the chamber lid by loosening the hinge bolt cap nuts and removing the two top cap nuts. This will allow the chamber lid to open freely.
5. Remove orifice plate and retainer with the wrench supplied with unit.

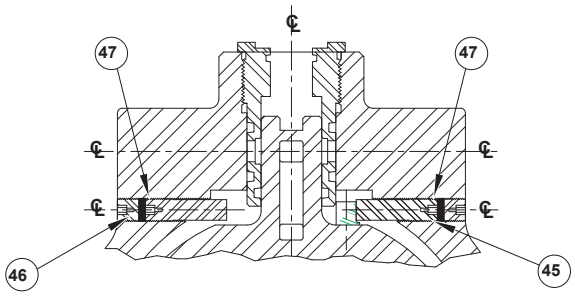
Replacing an Orifice Plate

1. Place orifice plate and retainer into the ball slot with "OUTLET" on plate holder facing "OUTLET" stamped on body casting.
2. Close chamber lid and tighten the four cap nuts.
3. Close "BLEED" valve.
4. Open "EQUALIZER" valve to equalize ball seal pressure.
5. Open main orifice fitting. This places orifice plate into operation and removes bypass section from the bore.
6. Close "EQUALIZER" valve.

2” and 3” MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS WITH INTERNAL BALL-STOP



TOP VIEW



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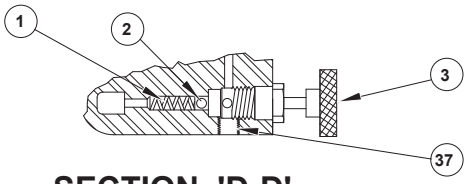

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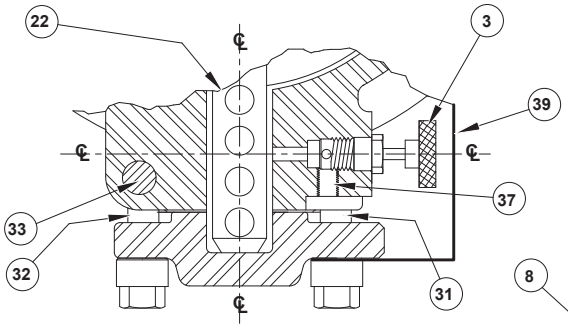

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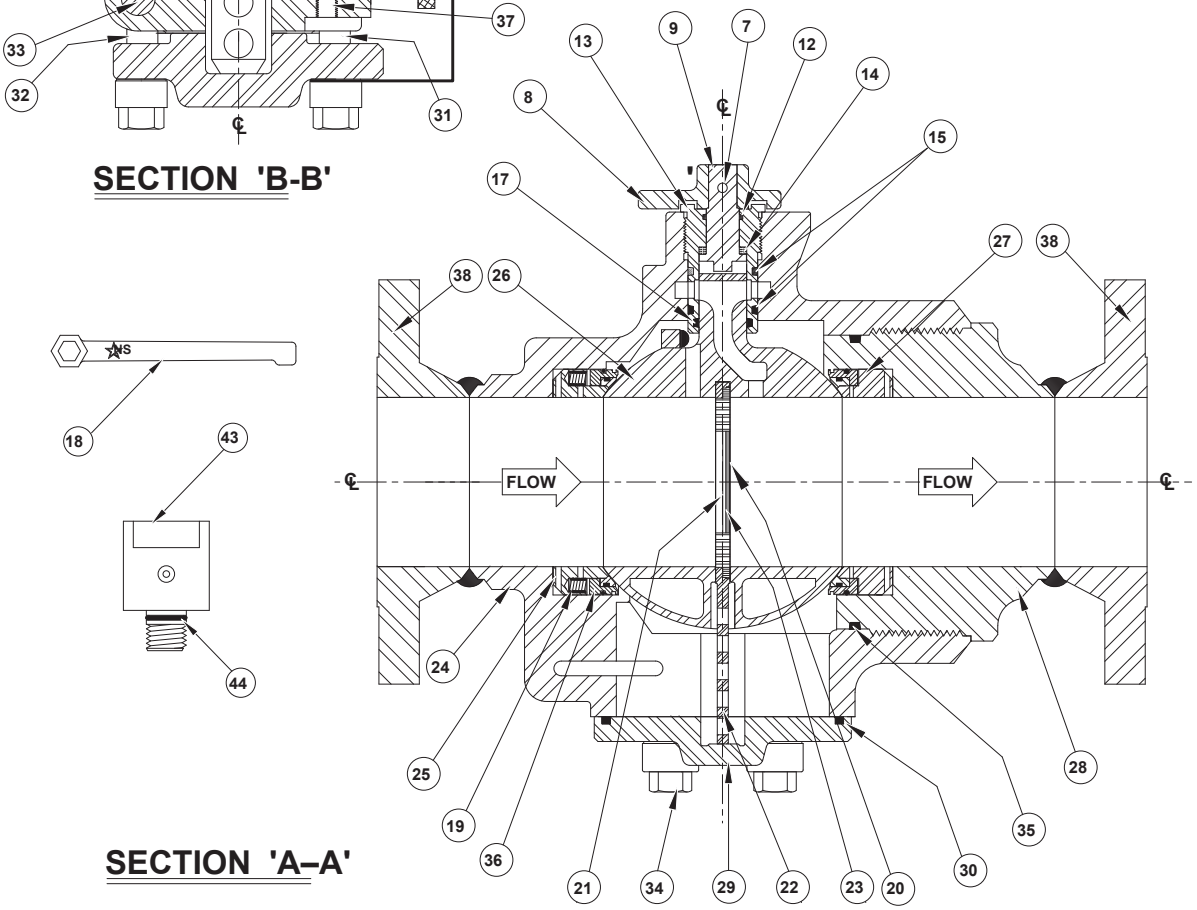
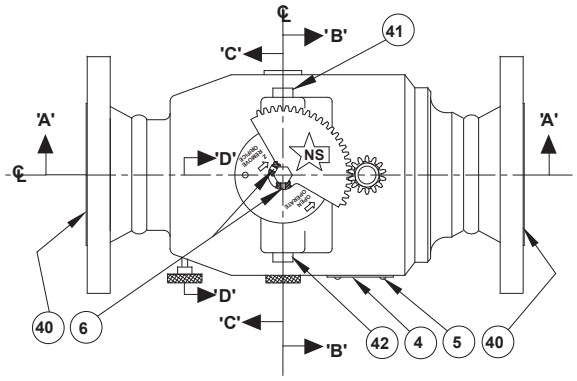


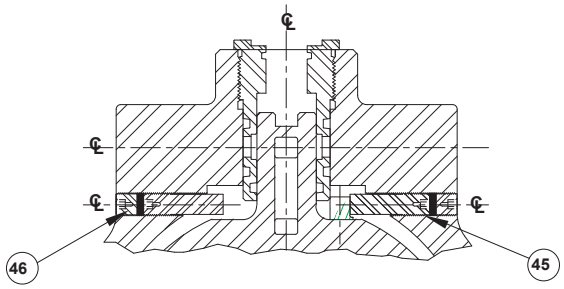
SECTION 'A–A'

4” MODEL 4055 DUAL CHAMBER ORIFICE FITTING WITH INTERNAL BALL-STOP

(SEE PAGE 8 FOR 6” DUAL CHAMBER FITTING DRAWING)



TOP VIEW



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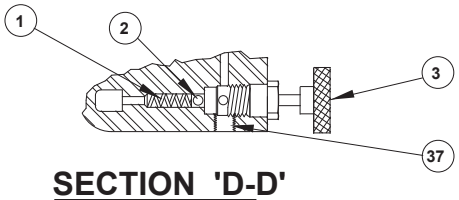

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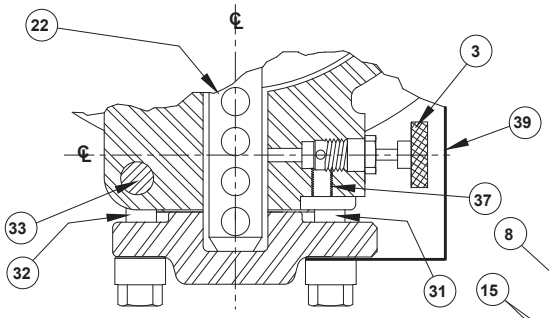

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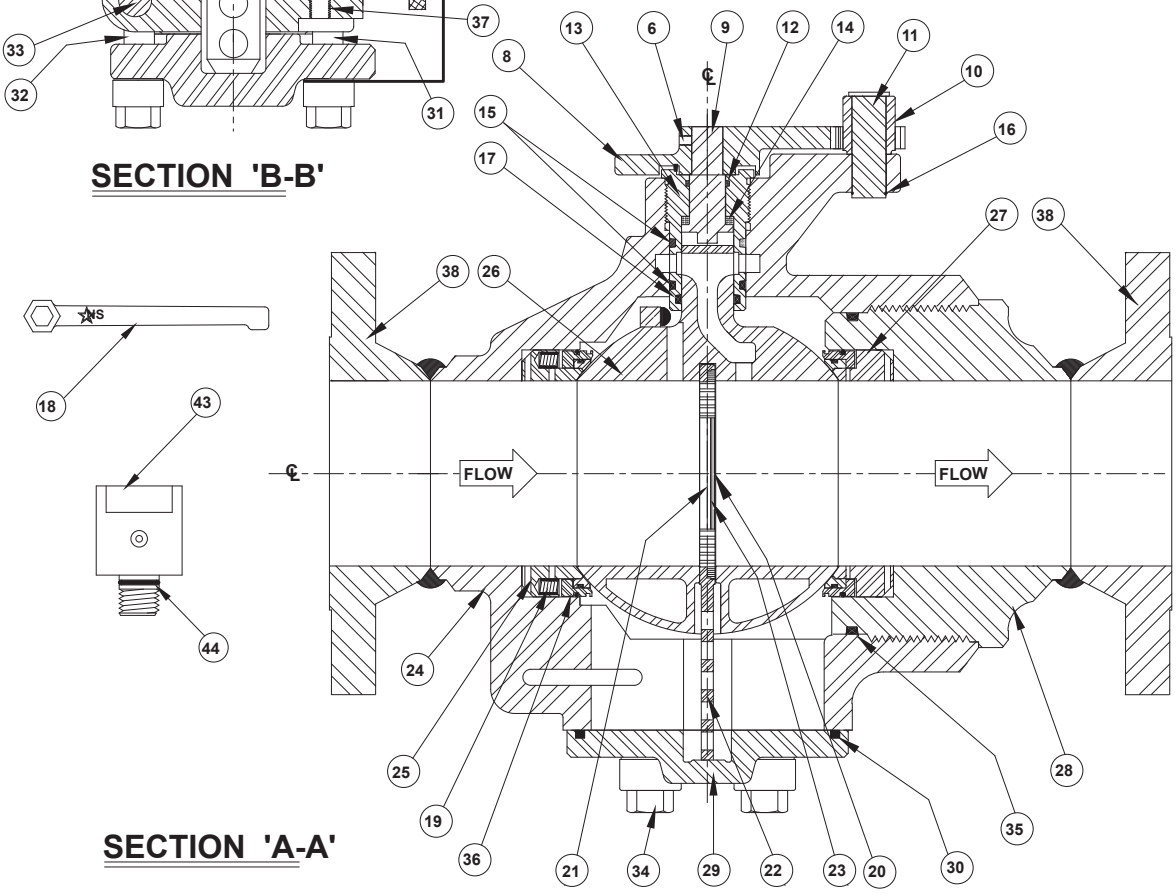


SECTION 'A-A'

PARTS LIST
2”, 3” and 4” MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS WITH INTERNAL BALL-STOP

ITEM	DESCRIPTION	QTY.	ASSY. NO. 40552 (2”) PART NO.	ASSY. NO. 40553 (3”) PART NO.	ASSY. NO. 40554 (4”) PART NO.
1	SPRING	1	40701-053-04000	40701-053-04000	40701-053-04000
2	0.250 316 S.S. BALL	1	01001-030-04300	01001-030-04300	01001-030-04300
3	BLEED VALVE ASSEMBLY	2	40701-J00-06000	40701-J00-06000	40701-J00-06000
4	INSTRUCTION PLATE	1	40701-009-04000	40701-009-04000	40701-009-04000
5	DRIVE SCREW #4 - 1/4” TYPE U	4	NCN	NCN	NCN
6	SET SCREW (ALLEN HEAD)	2	NA	5/16” - 18 TPI X 1/4”	3/8” - 16 TPI X 1/2”
7	ROLL PIN	1	1/8” X 7/8”		
8	BALL STOP	1	40552-119-04000	40553-130-04000	40554-138-04000
9	BALL STEM	1	40552-046-04000	40553-048-04000	40554-042-04000
10	SPUR GEAR				40704-004-04000
11	SPUR GEAR STEM	1			40704-046-04000
12	O-RING STEM RETAINER	1	40700-060-06000	40713-035-06000	40714-046-06000
13	STEM RETAINER	1	40552-027-04000	40703-016-04000	40704-033-04000
14	STEM RING	1	40701-014-04000	40703-018-04000	40704-034-04000
15	O-RING STEM RETAINER	2	40700-061-06000	40714-047-06000	40714-048-06000
16	STEM LOCK	1			40704-050-04000
17	O-RING STEM RETAINER	1	40700-059-06000	40713-036-06000	40714-047-06000
18	ORIFICE FITTING WRENCH	1	40701-075-00000	40703-045-00000	40704-031-00000
19	WAVE SPRING (STANDARD) WAVE SPRING (H_2S) SOUR	5	40700-009-03000 40700-020-06000	40703-088-03000 40703-093-06000	40704-082-04000 40704-087-06000
20	DOVETAIL RING	1	40712-001-04000	40713-006-04000	40714-010-04000
21	STANDARD ORIFICE PLATE 316 S.S	1	40552-052-00000	40553-055-00000	40554-049-00000
22	STANDARD ORIFICE PLATE RETAINER ORIFICE PLATE RETAINER ORIFICE PLATE RETAINER (TEFLON)	1	40552-062-04000 40552-069-04000	40553-062-04000 40553-065-04000	40554-063-04000 40554-065-04000
23	O-RING PLATE RETAINER O-RING (TEFLON) PLATE RETAINER	1	40700-005-06000 40552-059-06000	40702-025-06000 40553-060-06000	40714-052-06000 40554-059-06000
24	ORIFICE FITTING BODY 150# - 600# RATING SCH - 40 150# - 600# RATING SCH - 80 150# - 600# RATING SCH - 160 900 - 1500# RATING SCH - 80 900 - 1500# RATING SCH -160	1	 40552-023-04000 40552-024-04000 40552-025-04000 40552-024-04000 40552-025-04000	 40553-023-04000 40553-034-04000 40553-035-04000 40553-036-04000 40553-037-04000	 40554-017-04000 40554-025-04000 40554-026-04000 40554-035-04000 40554-030-04000
25	UPSTREAM SEAL RETAINER SCH - 40 BORE SCH - 80 BORE SCH - 160 BORE	1	 40552-031-04000 40552-032-04000 40552-033-04000	 40553-025-04000 40553-028-04000 40553-031-04000	 40554-019-04000 40554-021-04000 40554-023-04000
26	BYPASS BALL SCH - 40 SCH - 80 SCH - 160	1	 40552-115-04000 40552-116-04000 40552-117-04000	 40553-124-04000 40553-125-04000 40553-126-04000	 40554-135-04000 40554-136-04000 40554-137-04000
27	DOWNSTREAM SEAL RETAINER SCH - 40 SCH - 80 SCH - 160	1	 40552-035-04000 40552-036-04000 40552-037-04000	 40553-026-04000 40553-029-04000 40553-032-04000	 40554-020-04000 40554-022-04000 40554-024-04000
28	DOWNSTREAM WELDNECK SCH - 40 SCH - 80 SCH - 160	1	 40552-038-03000 40552-039-03000 40552-040-03000	 40553-024-03000 40553-027-03000 40553-030-03000	 40554-027-03000 40554-028-03000 40554-029-03000
29	CHAMBER LID	1	40552-043-04000	40553-033-04000	40554-018-04000

PARTS LIST
2”, 3” and 4” MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS WITH INTERNAL BALL-STOP (cont’d)

(SEE PAGES 9 & 10 FOR 6” DUAL CHAMBER FITTING PARTS LIST)

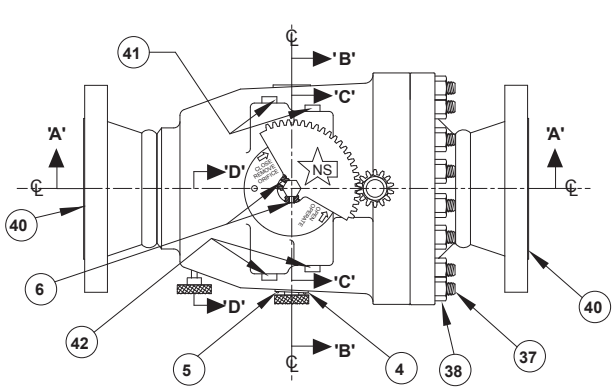
ITEM	DESCRIPTION	QTY.	ASSY. NO. 40552 (2”) PART NO.	ASSY. NO. 40553 (3”) PART NO.	ASSY. NO. 40554 (4”) PART NO.
30	O-RING CHAMBER LID	1	40552-051-06000	40553-051-06000	40714-059-06000
31	STUD BOLT	2	40726-006-04000	40703-026-04000	40704-019-04000
32	HINGE BOLT	2	40726-005-04000	40703-027-04000	40704-018-04000
33	HINGE PIN	1	40726-008-04000	40703-024-04000	40704-020-04000
34	HEX NUT	4	40701-021-04000	40703-025-04000	40704-021-04000
35	O-RING DOWNSTREAM WELDNECK	1	40552-054-06000	40553-052-06000	40714-060-06000
36	BALL SEAL ASSY. FOR 150# AND 300# RATING FOR 600# TO 1500# RATING	2	 40552-C00-04000 40552-A00-04000	 40703-D00-04000 40703-P00-04000	 40704-D00-04000 40704-P00-04000
ITEM	DESCRIPTION	QTY	ASSY. NO. 40552 (2”) PART NO.	ASSY. NO. 40553 (3”) PART NO.	ASSY. NO. 40554 (4”) PART NO.
37	PIPE PLUG 1/16” - 27 NPT	1	NCN	NCN	NCN
38	FLANGES FLANGED FLANGEWELD	 2 1	SPECIFIED BY TYPE AND PRESSURE RATING		
39	ORIFICE FITTING GUARD W/O BLEED-OFF-EXTENSION (STANDARD) W/BLEED-OFF-EXTENSION	1	40700-039-04000 40701-101-04000	40702-013-04000 40701-102-04000	40702-013-04000 40701-102-04000
40	PLASTIC BORE PLUG	2	NCN	NCN	NCN
41	PIPE PLUG 1/2”	2	35364-004-04000	35364-004-04000	35364-004-04000
42	PLASTIC PIPE PLUG 1/2”	2	NCN	NCN	NCN
43	BLEED-OFF EXTENSION (H_2S) SOUR	1	40701-S00-06000	40701-S00-06000	40701-S00-06000
44	O-RING	1	40714-061-06000	40714-061-06000	40714-061-06000
45	SET SCREW 1/2” - 20 UNF	2	40700-068-04000	40700-068-04000	40700-070-04000
46	PLUG 1/2” - 20 UNF	2	40700-069-04000	40700-069-04000	40700-069-04000
47	NYLON LOCKING PELLET	4	10008-006-04000	10008-006-04000	N/A
48	BALL STOP PLATE	1	40552-118-04000	40553-127-04000	

NOTE: ANSI FLANGE PRESSURE RATINGS 150# THROUGH 1500#

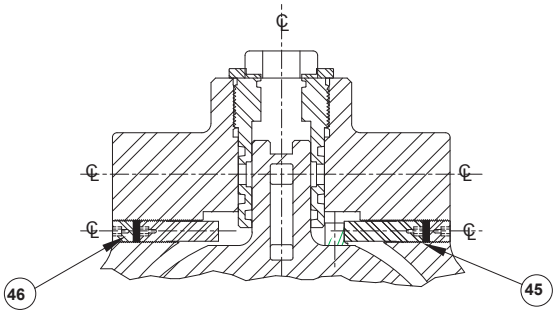
WHEN ORDERING SPARE PARTS, SPECIFY:

- NOMINAL SIZE - SCHEDULE
- TYPE OF SERVICE (SWEET, (H2S) SOUR)
- SERIAL NUMBER

6” MODEL 4055 DUAL CHAMBER ORIFICE FITTING WITH INTERNAL BALL-STOP



TOP VIEW



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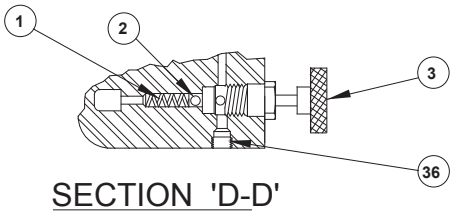

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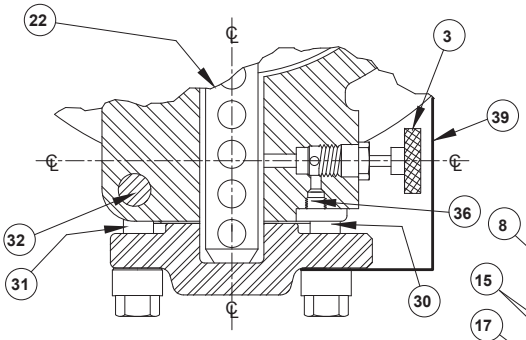

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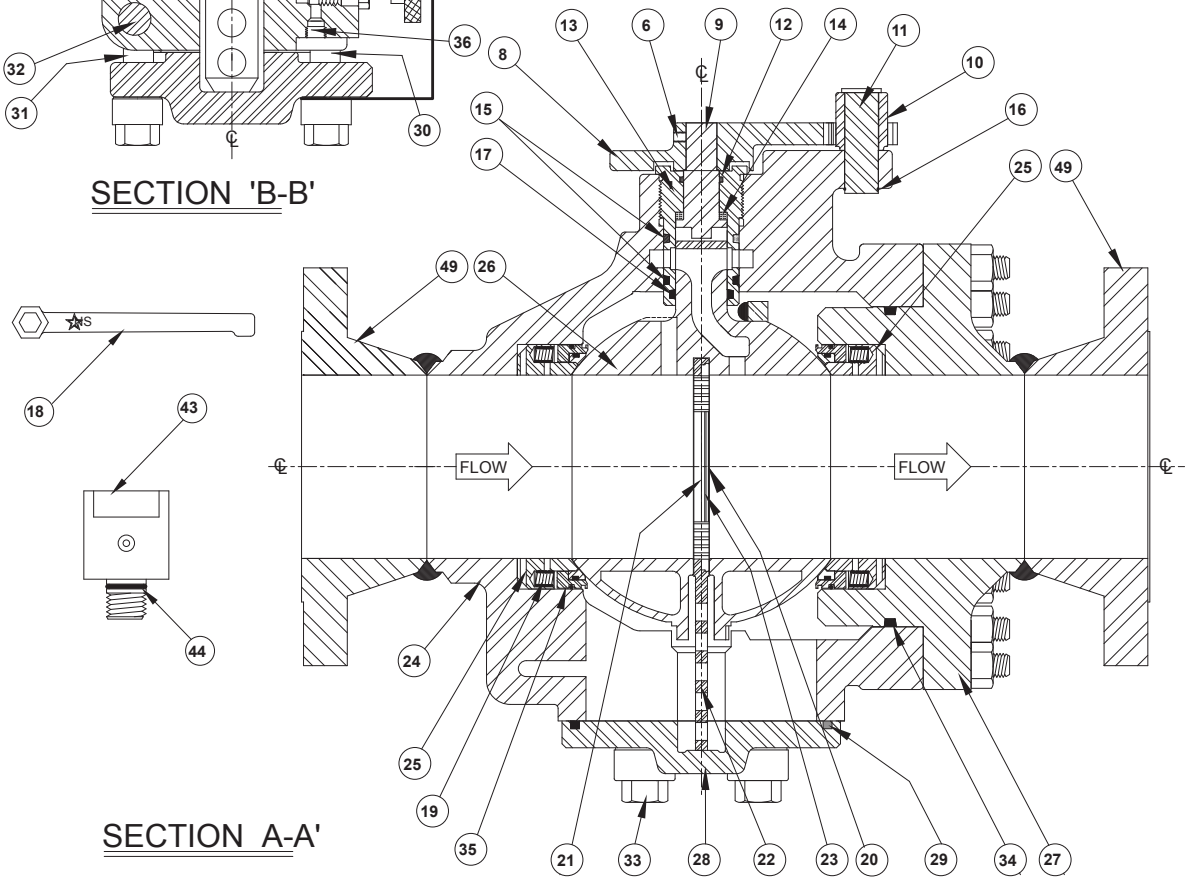


SECTION A-A'

PARTS LIST
6” MODEL 4055 DUAL CHAMBER ORIFICE FITTING WITH INTERNAL BALL-STOP

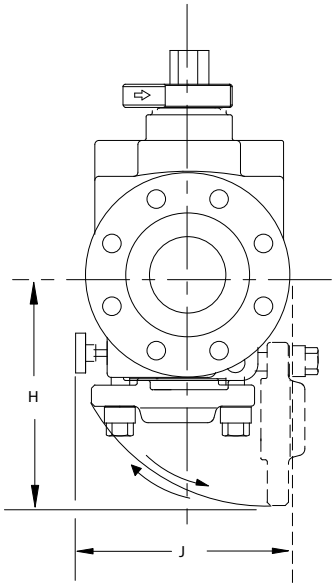
ITEM	DESCRIPTION	QTY	ASSY. NO. 40556 (6”) PART NO.
1	SPRING INCONNEL	1	40701-053-04000
2	T.C. BALL 0.250	1	01001-030-04300
3	BLEED VALVE ASSEMBLY	2	0701-J00-06000
4	INSTRUCTION PLATE	1	40701-009-04000
5	DRIVE SCREW #4 - 1/4” TYPE U	4	NCN
6	SET SCREW (ALLEN HEAD)	2	3/8 - 16 TPI X 1/2”
7	N/A		
8	BALL STOP	1	40706-055-04000
9	BALL STEM	1	40556-034-04000
10	SPUR GEAR	1	40704-004-04000
11	SPUR GEAR STEM	1	40704-046-04000
12	O-RING STEM RETAINER	1	40713-036-06000
13	STEM RETAINER	1	40706-032-04000
14	STEM RING	1	40706-033-04000
15	O-RING STEM RETAINER	2	40706-095-06000
16	STEM LOCK	1	40704-050-04000
17	O-RING STEM RETAINER	1	40706-094-06000
18	ORIFICE FITTING WRENCH	1	40704-031-00000
19	COIL SPRING (STANDARD)	16	40706-047-04000
	COIL SPRING (H_2S) SOUR		40706-046-06000
20	DOVETAIL RING	1	40706-080-04000
21	STANDARD ORIFICE PLATE 316 S.S.	1	40556-046-00000
22	ORIFICE PLATE RETAINER (STANDARD)	1	40556-076-04000
	ORIFICE PLATE RETAINER (TEFLON)	1	40556-083-04000
23	O-RING PLATE RETAINER	1	40706-098-06000
	O-RING (TEFLON) PLATE RETAINER	2	40556-074-06000
24	ORIFICE FITTING BODY SCH 40 SCH 80	1	 40556-066-04000 40556-065-04000
25	SEAL RETAINER SCH 40 SCH 80	2	 40556-018-04000 40556-020-04000
26	BY-PASS BALL SCH 40 SCH 80	1	 40556-137-04000 40556-138-04000
27	DOWNSTREAM WELDNECK SCH 40 SCH 80	1	 40556-086-03000 40556-087-03000
28	CHAMBER LID	1	40706-093-04000
29	O-RING CHAMBER LID	1	40556-038-06000
30	STUD BOLT	2	40704-019-04000
31	HINGE BOLT	2	40704-018-04000
32	HINGE PIN	1	40706-018-04000
33	HEX NUT	4	40704-021-04000
34	O-RING DOWNSTREAM WELDNECK	1	40706-096-06000
35	BALL SEAL ASSEMBLY FOR 150 AND 300# RATING FOR 600# RATING	2	 40706-A00-04000 40706-P00-04000

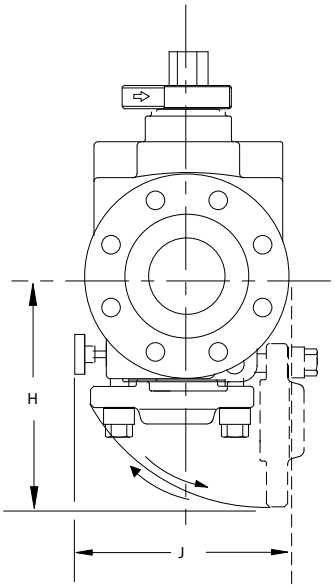
PARTS LIST (cont'd)
6" MODEL 4055 DUAL CHAMBER ORIFICE FITTING WITH INTERNAL BALL-STOP

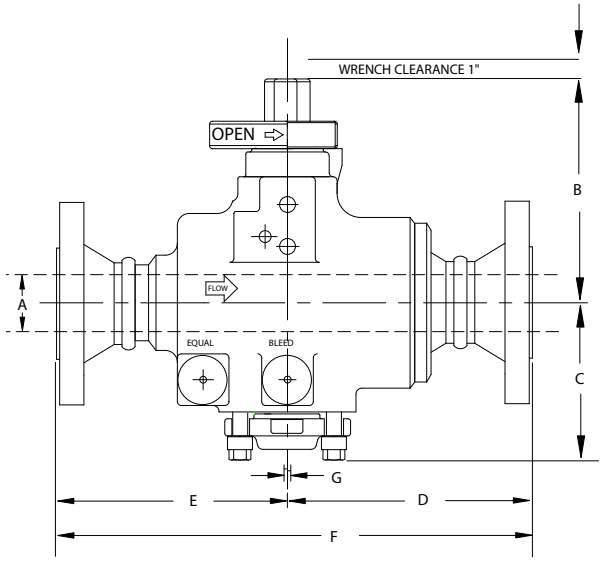
ITEM	DESCRIPTION	QTY	ASSY. NO. 40556 (6") PART NO.
36	PIPE PLUG 1/16" - 27 NPT	1	NCN
37	MILL STUD	16	40706-052-06000
38	HEX NUT	16	C1408-006-06000
39	ORIFICE FITTING GUARD W/O BLEED-OFF-EXTENSION (STANDARD) W/ BLEED-OFF-EXTENSION	1	 40556-035-04000 40701-103-04000
40	PLASTIC BORE PLUG	2	NCN
41	PIPE PLUG 1/2"	2	35364-004-04000
42	PLASTIC PIPE PLUG 1/2"	2	NCN
43	BLEED-OFF-EXTENSION (H_2S) SOUR	1	40701 -S00-06000
44	O-RING	1	40714-061-06000
45	SET SCREW 5/8" - 18 UNF	2	40700-071-04000
46	PLUG 5/8"- 18 UNF	2	40700-072-04000
47	NYLON LOCKING PELLET		N/A
48	BALL STOP PLATE		N/A
49	FLANGES FLANGED FLANGEWELD	 2 1	SPECIFIED BY TYPE AND PRESSURE RATING

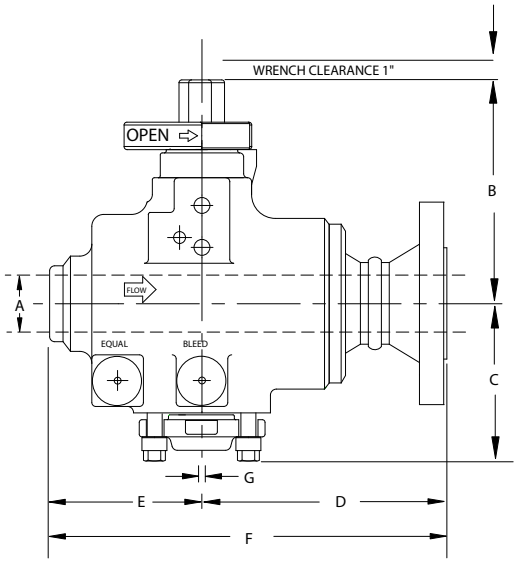
WHEN ORDERING SPARE PARTS, SPECIFY:
- NOMINAL SIZE - SCHEDULE
- TYPE OF SERVICE (SWEET, (H2S) SOUR)
- SERIAL NUMBER

DIMENSIONAL DATA
2” and 3” MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS





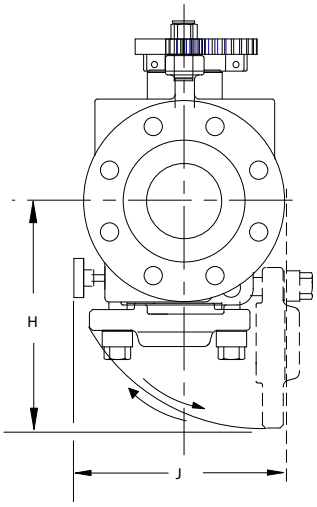


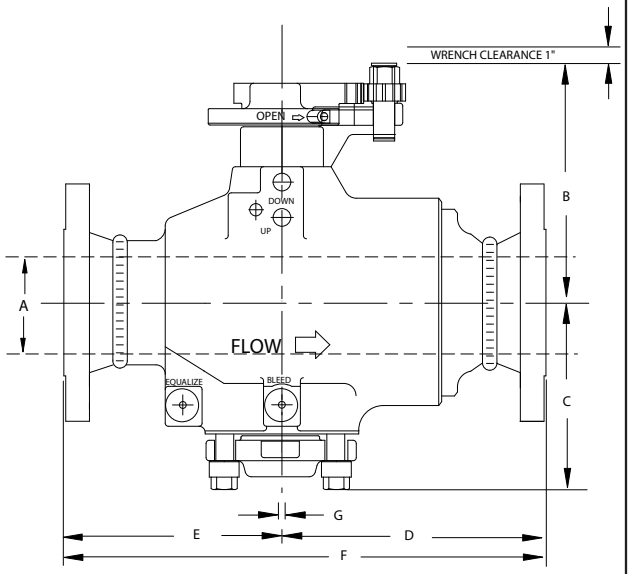


FLANGED TYPE

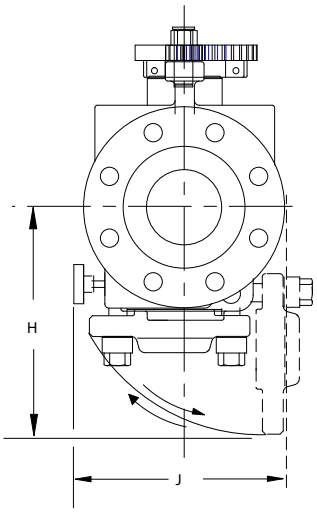
FLANGEWELD TYPE

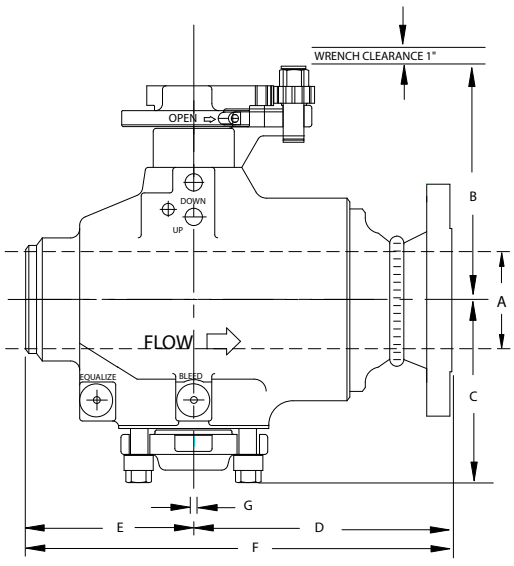
DIMENSIONAL DATA
4” MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS





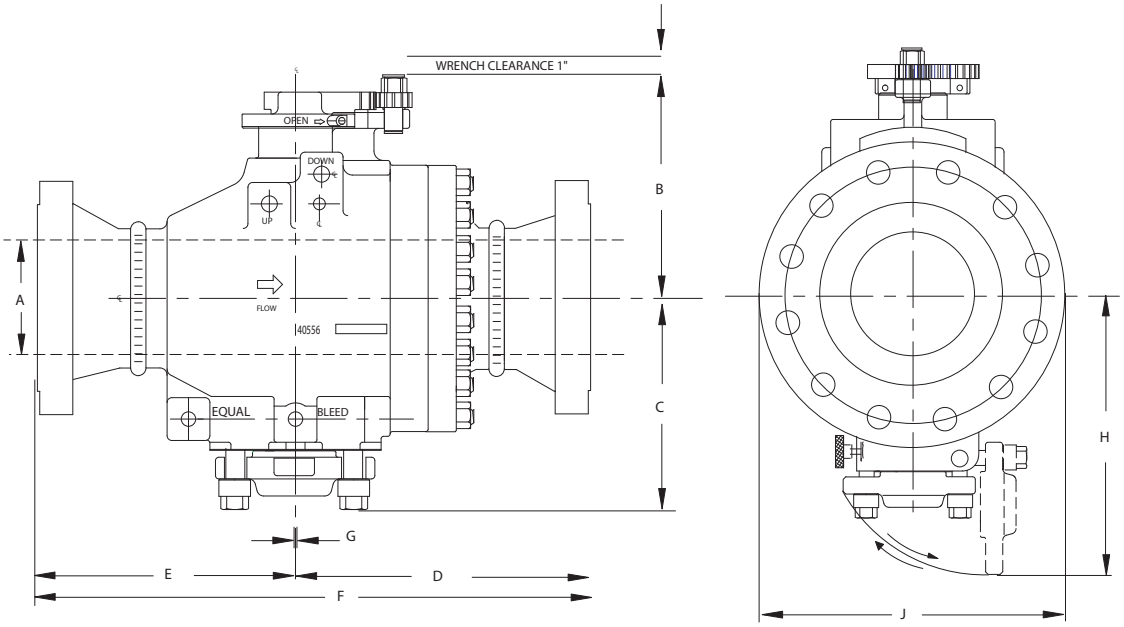
FLANGED TYPE



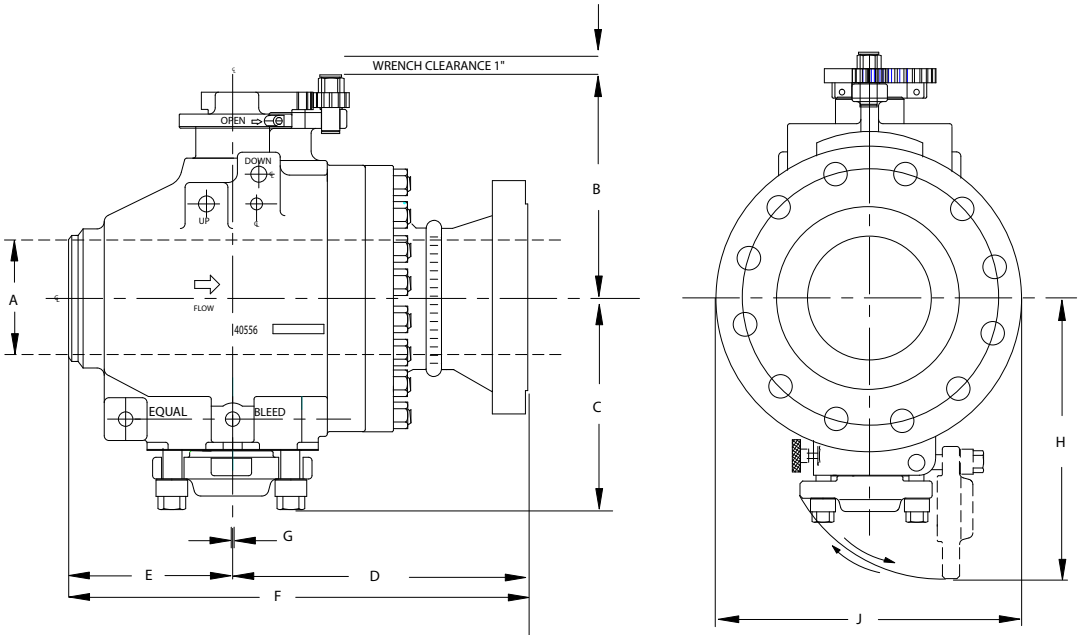


FLANGEWELD TYPE

DIMENSIONAL DATA
6” MODEL 4055 DUAL CHAMBER ORIFICE FITTING



FLANGED TYPE



FLANGEWELD TYPE

MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS
DIMENSIONS—FLANGED TYPE WITH RAISED FACE FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	DOWNSTREAM LENGTH FROM CENTERLINE TO FACE AT END	UPSTREAM LENGTH FROM CENTERLINE TO FACE AT END	OVERALL LENGTH END TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	BODY CLEARANCE	APPROXIMATE WEIGHT, LBS.	HYDROSTATIC TEST PRESSURE, TEMP. LESS THAN 125°F
	A	B	C	D	E	F	G	H	J		
FLANGED TYPE, 150LB. A.N.S.I. - RAISED FACE FLANGE - 285 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8 5/64	7-7/16	15-33/64	1/8	6-7/8	6-1/4	67	450 PSI
3	3.068*	7-3/8	6-3/4	9-1/4	8-5/16	17-9/16	1/8	8-5/16	7-3/4	95	
4	4.026*	9-3/4	8	11-7/8	10-1/16	21-15/16	1/8	10-7/8	8-9/16	182	
6	6.065*	11-7/8	10-3/4	13-3/4	12-3/16	25-61/64	1/8	13-1/2	14	170	
FLANGED TYPE, 300LB. A.N.S.I. - RAISED FACE FLANGE - 740 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8-21/64	7-11/16	16-1/64	1/8	6-7/8	6-1/4	71	1125 PSI
3	3.068*	7-3/8	6-3/4	9-21/32	8-11/16	18-11/32	1/8	8-5/16	8-1/2	105	
4	4.026*	9-3/4	8	12-1/4	10-7/16	22 -11/16	1/8	10-7/8	9-1/8	202	
6	6.065*	11-7/8	10-3/4	14-1/8	12-9/16	26-45/64	1/8	13-1/2	14	420	
FLANGED TYPE, 600LB. A.N.S.I. - RAISED FACE FLANGE - 1480 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8-11/16	8-1/16	16-3/4	1/8	6-7/8	6-1/4	75	2225 PSI
3	3.068*	7-3/8	6-3/4	10-1/64	9-1/16	19-5/64	1/8	8-5/16	8-1/2	105	
4	4.026’	9-3/4	8	13-1/4	11-5/16	24-9/16	1/8	10-7/8	9-1/2	225	
6	6.065*	11-7/8	10-3/4	15-1/8	13-9/16	28-45/64	1/8	13-1/2	14	490	
FLANGED TYPE, 900LB. A.N.S.I. - RAISED FACE FLANGE - 2220 PSI. C.W.P.											
2	1.939’	6-7/16	5-3/8	9-13/16	9-1/4	19-1/16	1/8	6-7/8	8-5/16	108	3350 PSI
3	2.900*	7-3/8	6-3/4	10-3/4	9-7/8	20-5/8	1/8	8-5/16	9	127	
4	3.826*	9-3/4	8	13-5/8	11-7/8	25-1/2	1/8	10-7/8	9-1/2	251	
FLANGED TYPE, 1500LB. A.N.S.I. - RAISED FACE FLANGE - 3705 PSI. C.W.P.											
2	**	6-7/16	5-3/8	9-13/16	9-1/4	19-1/16	1/8	6-7/8	7-3/4	108	5575 PSI
3	**	7-3/8	6-3/4	11-13/32	10-1/2	22-5/16	1/8	8-5/16	9	165	
4		9-3/4	8	14	12-1/4	26-1/4	1/8	10-7/8	9-1/2	251	

*AVAILABLE IN OTHER BORES
**BORE TO BE SPECIFIED

MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS
DIMENSIONS—FLANGED TYPE WITH RING TYPE JOINT FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	DOWNSTREAM LENGTH FROM CENTERLINE TO FACE AT END	UPSTREAM LENGTH FROM CENTERLINE TO FACE AT END	OVERALL LENGTH END TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	BODY CLEARANCE	APPROXIMATE WEIGHT, LBS.	HYDROSTATIC TEST PRESSURE, TEMP. LESS THAN 125°F
FLANGED TYPE, 600LB. A.N.S.I. - RING TYPE JOINT FLANGE - 1480 PSI. C.W.P.											
2	2.067’	6-7/16	5-3/8	8-3/4	8-1/8	16-7/8	1/8	6-7/8	6-1/4	75	2225 PSI
3	3.068*	7-3/8	6-3M	10-1/64	9-1/16	19-5/64	1/8	8-5/16	8-1/2	105	
4	4.026*	9-3/4	8	13-1/4	11-5/16	24-9/16	1/8	10-7/8	9-1/2	225	
6	6.065*	11-7/8	10-3/4	15-1/8	13-9/16	28-45/64	1/8	13-1/2	14	491	
FLANGED TYPE, 900LB. A.N.S.I. - RING TYPE JOINT FLANGE - 2220 PSI. C.W.P.											
2	1.939*	6-7/16	5-3/8	9-7/8	9-5/16	19-3/16	1/8	6-7/8	7-3/4	108	3350 PSI
3	2.900*	7-3/8	6-3/4	10-29/32	10	20-29/32	1/8	8-5/16	9	127	
4	3.826*	9-3/4	8	13-3/4	12	25-3/4	1/8	10-7/8	9-1/2	251	
FLANGED TYPE, 1500LB. A.N.S.I. - RING TYPE JOINT FLANGE - 3705 PSI. C.W.P.											
2	**	7-3/8	5-3/8	9-7/8	9-1/4	19-1/8	1/8	6-7/8	7-3/4	108	5575 PSI
3	**	7-3/8	6-3/4	11-13/32	10-1/2	21-29/32	1/8	8-5/16	9	165	
4	**	9-3/4	8	14	12-1/4	26-1/4	1/8	10-7/8	9-1/2	251	

*AVAILABLE IN OTHER BORES
**BORE TO BE SPECIFIED

MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS
DIMENSIONS—FLANGEWELD TYPE WITH RAISED FACE FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	DOWNSTREAM LENGTH FROM CENTERLINE TO FACE AT END	UPSTREAM LENGTH FROM CENTERLINE TO FACE AT END	OVERALL LENGTH END TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	BODY CLEARANCE	APPROXIMATE WEIGHT, LBS.	HYDROSTATIC TEST PRESSURE, TEMP. LESS THAN 125°F
	A	B	C	D	E	F	G	H	J		
FLANGEWELD TYPE, 150LB. A.N.S.I. - RAISED FACE FLANGE - 285 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8-5/64	4-7/8	12-15/16	1/8	6-7/8	6-1/4	61	450 PSI
3	3.068*	7-3/8	6-3/4	9-1/4	5-1/2	14-3/4	1/8	8-5/16	7-3/4	81	
4	4.026*	9-3/4	8	11-57/64	7	18-57/64	1/8	10-7/8	8-9/16	166	
6	6.065*	11-7/8	10-3/4	13-3/4	8-5/8	22-3/8	1/8	13-1/2	14	350	
FLANGEWELD TYPE, 300LB. A.N.S.I. - RAISED FACE FLANGE - 740 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8-21/64	4-7/8	13-3/16	1/8	6-7/8	6-3/4	63	1125 PSI
3	3.068*	7-3/8	6-3/4	9-21/32	5-1/2	15-9/64	1/8	8-5/16	8-1/2	87	
4	4.026*	9-3/4	8	12-1/4	7	19-1/4	1/8	10-7/8	9-1/8	176	
6	6.065*	11-7/8	10-3/4	14-1/8	8-5/8	22-3/4	1/8	13-1/2	14	380	
FLANGEWELD TYPE, 600LB. A.N.S.I. - RAISED FACE FLANGE - 1480 PSI. C.W.P.											
2	2.067*	6-7/16	5-3/8	8-11/16	4-7/8	13-37/64	1/8	6-7/8	6-3/4	65	2225 PSI
3	3.068*	7-3/8	6-3/4	10-1/64	5-1/2	15-33/64	1/8	8-5/16	8-1/2	87	
4	4.026’	9-3/4	8	13-1/8	7	20-1/8	1/8	10-7/8	9-1/2	187	
6	6.065*	11-7/8	10-3/4	15-1/8	8-5/8	23-3/4	1/8	13-1/2	14	420	
FLANGEWELD TYPE, 900LB. A.N.S.I. - RAISED FACE FLANGE - 2220 PSI. C.W.P.											
2	1.939’	6-7/16	5-3/8	9-13/16	4-7/8	14-11/16	1/8	6-7/8	8-5/16	84	3350 PSI
3	2.900*	7-3/8	6-3/4	10-3/4	5-1/2	16-1/4	1/8	8-5/16	9	98	
4	3.826*	9-3/4	8	13-5/8	7	20-5/8	1/8	10-7/8	9-1/2	200	
FLANGEWELD TYPE, 1500LB. A.N.S.I. - RAISED FACE FLANGE - 3705 PSI. C.W.P.											
2	**	6-7/16	5-3/8	9-13/16	4-7/8	14-11/16	1/8	6-7/8	8-3/4	84	5575 PSI
3	**	7-3/8	6-3/4	11-13/16	5-1/2	17-5/16	1/8	8-5/16	9	117	
4	**	9-3/4	8	14	7	21	1/8	10-7/8	9-1/2	200	

*AVAILABLE IN OTHER BORES
**BORE TO BE SPECIFIED

MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS
DIMENSIONS—FLANGEWELD TYPE WITH RING TYPE JOINT FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	DOWNSTREAM LENGTH FROM CENTERLINE TO FACE AT END	UPSTREAM LENGTH FROM CENTERLINE TO FACE AT END	OVERALL LENGTH END TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	BODY CLEARANCE	APPROXIMATE WEIGHT, LBS.	HYDROSTATIC TEST PRESSURE, TEMP. LESS THAN 125°F
FLANGEWELD TYPE, 600LB. A.N.S.I. - RING TYPE JOINT FLANGE - 1480 PSI. C.W.P.											
2	2.067'	6-7/16	5-3/8	8-3/4	4-7/8	13-5/8	1/8	6-7/8	6-3/4	65	2225 PSI
3	3.068*	7-3/8	6-3M	10-1/64	5-1/2	15-33/64	1/8	8-5/16	8-1/2	87	
4	4.026*	9-3/4	8	13-1/4	7	20-1/4	1/8	10-7/8	9-1/2	187	
6	6.065*	11-7/8	10-3/4	15-1/8	8-5/8	23-3/4	1/8	13-1/2	14	421	
FLANGEWELD TYPE, 900LB. A.N.S.I. - RING TYPE JOINT FLANGE - 2220 PSI. C.W.P.											
2	1.939*	6-7/16	5-3/8	9-7/8	4-7/8	14-3/4	1/8	6-7/8	7-3/4	84	3350 PSI
3	2.900*	7-3/8	6-3/4	10-29/32	5-1/2	16-13/32	1/8	8-5/16	9	98	
4	3.826*	9-3/4	8	13-3/4	7	20-3/4	1/8	10-7/8	9-1/2	200	
FLANGEWELD TYPE, 1500LB. A.N.S.I. - RING TYPE JOINT FLANGE - 3705 PSI. C.W.P.											
2	**	7-3/8	5-3/8	9-15/16	4-7/8	14-13/16	1/8	6-7/8	7-3/4	84	5575 PSI
3	**	7-3/8	6-3/4	11-13/32	5-1/2	16-29/32	1/8	8-5/16	9	117	
4	**	9-3/4	8	14	7	21	1/8	10-7/8	9-1/2	251	

*AVAILABLE IN OTHER BORES
**BORE TO BE SPECIFIED

RECOMMENDED SPARE PARTS
MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS

SIZE	DESCRIPTION	PART NO.	QTY.
2”	Dovetail Ring O-Ring for Orifice Plate O-Ring for Chamber Lid	40712-001-04000 40700-005-06000 40552-051-06000	1 2 2
3”	Dovetail Ring O-Ring for Orifice Plate O-Ring for Chamber Lid	40713-006-04000 40702-025-06000 40553-051-06000	1 2 2
4”	Dovetail Ring O-Ring for Orifice Plate O-Ring for Chamber Lid	40714-010-04000 40714-052-06000 40714-059-06000	1 2 2
6”	Dovetail Ring O-Ring for Orifice Plate O-Ring for Chamber Lid	40706-080-04000 40706-098-06000 40556-038-06000	1 2 2

WARNING

Use only spare parts identified in this manual. NuFlo bears no legal responsibility for the performance of a product that has been serviced or repaired with parts that are not authorized by NuFlo.

REDRESS KITS
MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS

SIZE	DESCRIPTION			PART NO.
2”	ORIFICE FITTING PART NO. 40552	SWEET	150# - 300#	40837-X00-03000
		(H_2S) SOUR	150# - 300#	40837-X00-06000
		SWEET	600# - 1500#	40837-Y00-03000
		(H_2S) SOUR	600# - 1500#	40837-Y00-06000
3”	ORIFICE FITTING PART NO. 40553	SWEET	150# - 300#	40838-X00-03000
		(H_2S) SOUR	1500# - 300#	40838-X00-06000
		SWEET	600# - 1500#	40838-Y00-03000
		(H_2S) SOUR	600# - 1500#	40838-Y00-06000
4”	ORIFICE FITTING PART NO. 40554	SWEET	150# - 300#	40839-X00-03000
		(H_2S) SOUR	150# - 300#	40839-X00-06000
		SWEET	600# - 1500#	40839-Y00-03000
		(H_2S) SOUR	600# - 1500#	40839-Y00-06000
6”	ORIFICE FITTING PART NO. 40556	SWEET	150# - 300#	40840-X00-03000
		(H_2S) SOUR	150# - 300#	40840-X00-06000
		SWEET	600#	40840-Y00-03000
		(H_2S) SOUR	600#	40840-Y00-06000

NOTE: Specify pressure rating when ordering redress kits.

Model 4042 Single Chamber Orifice Fittings

The NuFlo Single Chamber Orifice Fitting is designed for use in installations in which the line can be depressurized to change or inspect the orifice plate. Economical and lightweight, the single chamber features a simplicity of design with a minimum number of parts. A quick and easy method for removing orifice plates minimizes shutdown time. The interchangeability of the orifice plates and retainers between the NuFlo Dual Chamber and Single Chamber orifice fittings also provides an economy in inventory requirements.

Standard Specifications

Single chamber orifice fittings are available in flangeweld and weldneck types. All NuFlo single chamber orifice fittings meet AGA/API specifications. Two sets of 1/2” NPT flange taps are provided on all single chamber orifice fittings. They are available in 2”, 3” and 4” sizes.

When Ordering, Specify:

- Quantity
- Assembly part number
- Type of single chamber orifice fitting (flangeweld, weldneck)
- Service (sweet, (H_2S) sour)
- Flange rating
- Flange type (raised face, ring type joint)
- Pipe schedule
- Orifice plate bore size(s)

Installation and Maintenance

Install the NuFlo single chamber orifice fitting with the two 1/2” NPT flange taps and instruction plate facing upward. The flow arrow cast on the body chamber lid must correspond with flow direction of line. The orifice fitting is shipped with an orifice plate installed. Remove the orifice plate before flushing or purging the line. Maintenance is minimal; lubrication is not required.

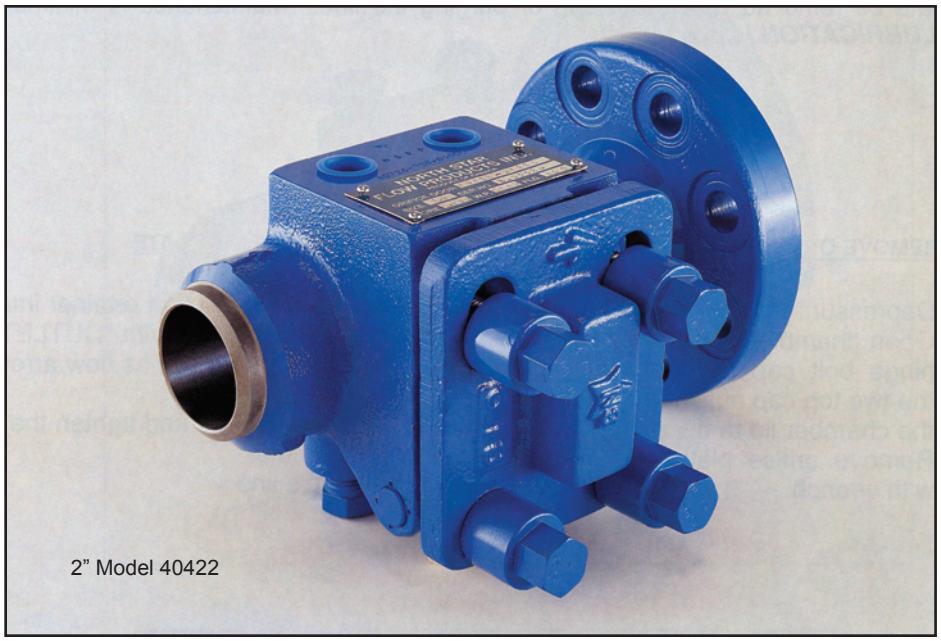
Operating Instructions

Removing Orifice Plate

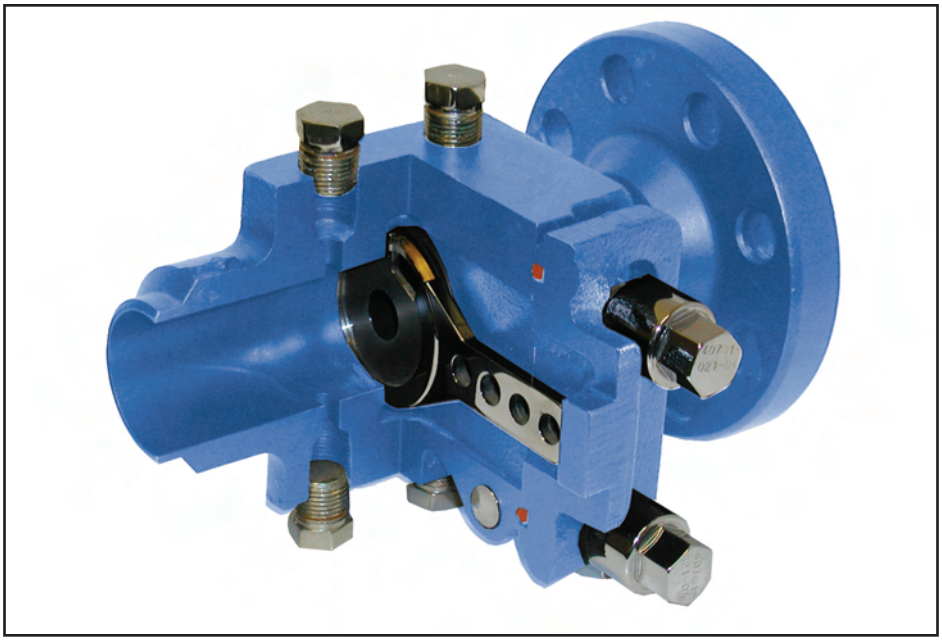
1. Depressurize line.
2. Open chamber lid by loosening the hinge bolt cap nuts and removing the two top cap nuts. This will allow the chamber lid to open freely.
3. Remove orifice plate and retainer.

Replacing Orifice Plate

1. Place orifice plate and retainer into the slot of the fitting with “OUTLET” facing same direction as flow arrow on chamber lid.
2. Close chamber lid and tighten the four cap nuts.
3. Pressurize line.



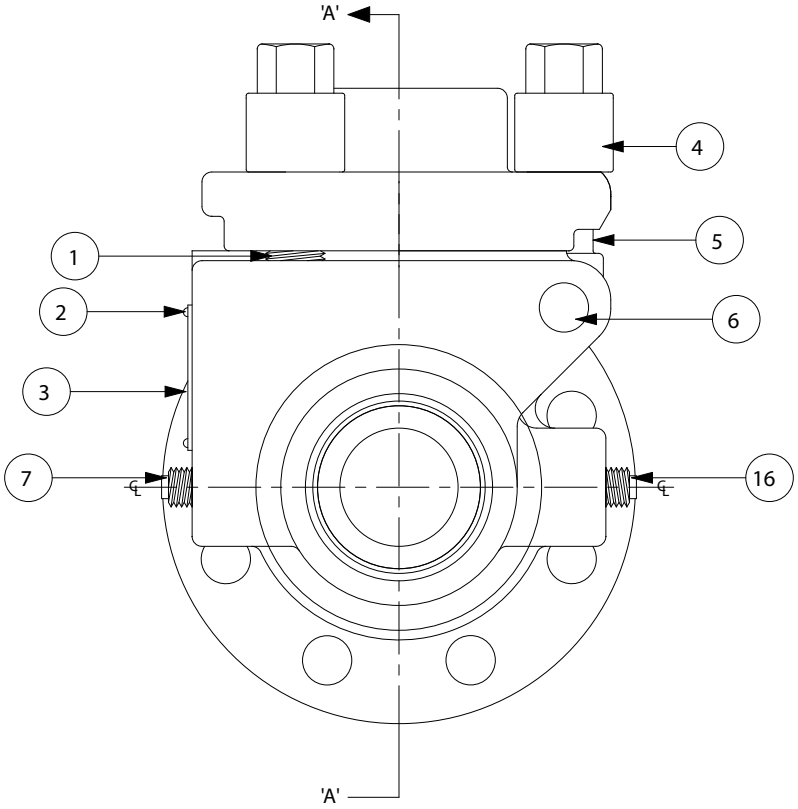
Single chamber orifice fitting, flangeweld type

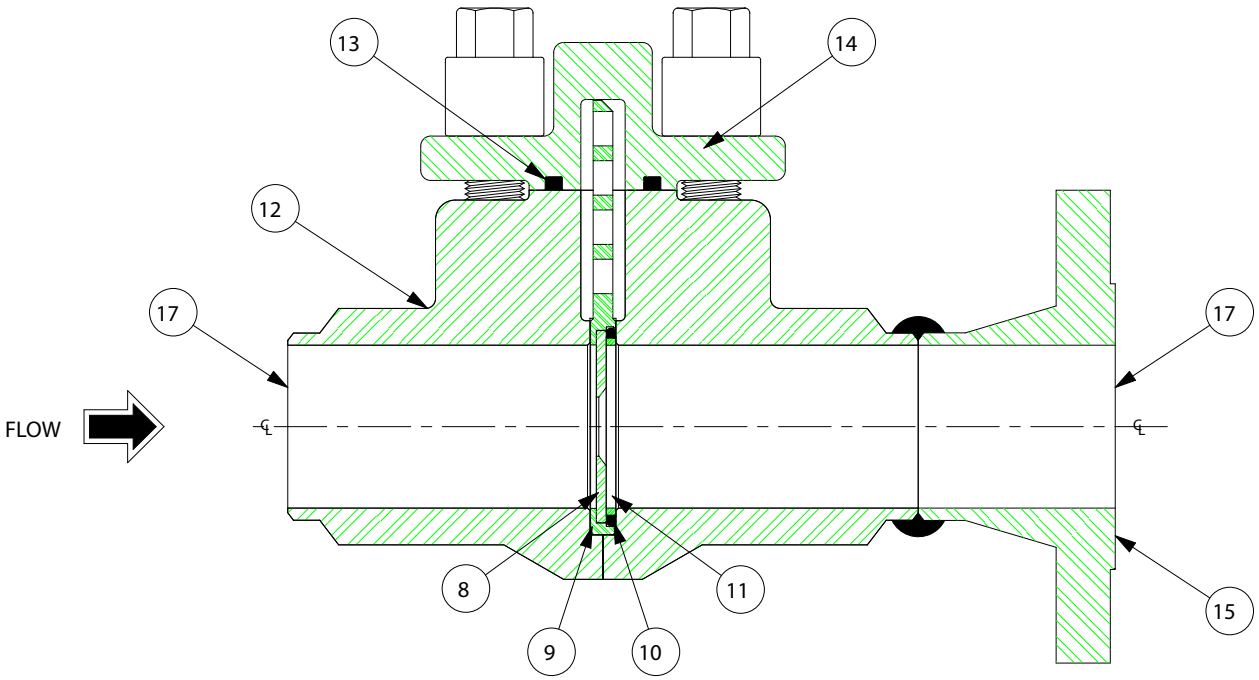


Cut-away, single chamber orifice fitting, flangeweld type

ORIFICE FITTING SIZES	2”	3”	4”
ASSEMBLY PART NUMBER	40422	40423	40424
ANSI FLANGE PRESSURE RATINGS	150 THROUGH 1500	150 THROUGH 1500	150 THROUGH 1500
INTERNAL DIAMETER	SCH 40 THROUGH SCH XX	SCH 40 THROUGH SCH 160	SCH 40 THROUGH SCH 160

MODEL 4042 SINGLE CHAMBER ORIFICE FITTINGS





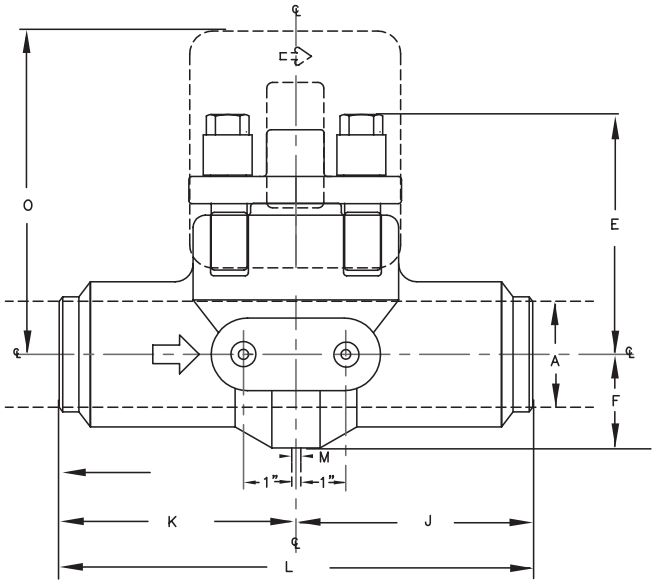
SECTION A-A

PARTS LIST
2”, 3” AND 4” MODEL 4042 SINGLE CHAMBER ORIFICE FITTINGS

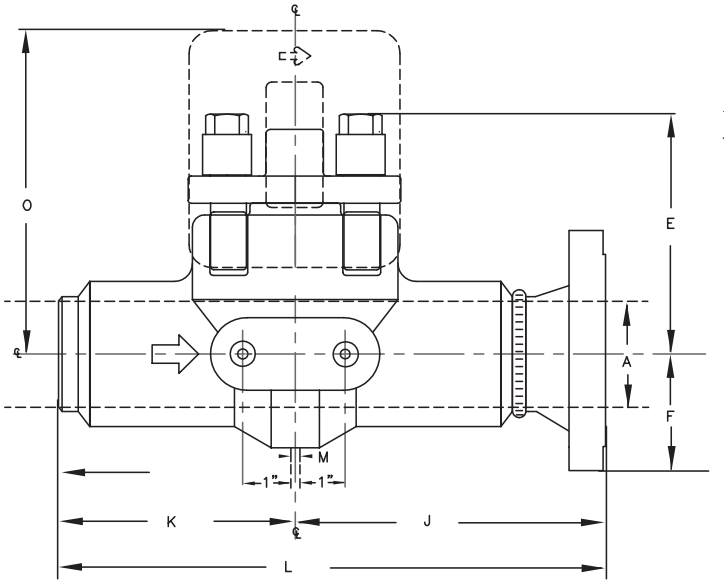
ITEM	DESCRIPTION	QTY.	ASSY.NO.40422 (2”)		ASSY.NO.40422 (3”)		ASSY.NO.40422 (4”)	
			PART NO.	NOTE	PART NO.	NOTE	PART NO.	NOTE
1	STUD BOLT	2	40726-006-04000	C	40703-026-04000	C	40704-019-04000 40724-002-04000	A B
2	DPI VE SCREW #4 - 1/4” TYPE U	4	NCN		NCN		NCN	
3	IDENTIFICATION PLATE	1	40726-014-04000		40726-014-04000		40726-014-04000	
4	HEX NUT	4	40701-021-04000	C	40703-025-04000	C	40704-021-04000	C
5	HINGE BOLT	2	40726-005-04000	C	40703-027-04000	C	40704-018-04000 40424-001-04000	A B
6	HINGE	1	40726-008-04000	C	40728-011-04000	C	40729-008-04000 40424-008-04000	A B
7	PLASTIC PIPE PLUG	2	NCN		NCN		NCN	
8	STANDARD ORIFICE PLATE 316 S.S.	1	40552-052-00000		40553-055-00000		40554-049-00000	
9	STANDARD ORIFICE PLATE RETAINER ORIFICE PLATE RETAINER (TEFLON)	1	40552-062-04000 40552-069-04000	A B	40553-062-04000 40553-065-04000	A B	40554-063-04000 40554-065-04000	A B
10	O-RING PLATE RETAINER O-RING (TEFLON) PLATE RETAINER	1	40700-005-06000 40552-059-06000		40702-025-06000 40553-060-06000		40714-052-06000 40554-059-06000	
11	DOVETAIL RING	1	40712-001-04000		40713-006-04000		40714-010-04000	
12	ORIFICE FITTING BODY WELDNECK 150# - 600# RATING SCH 40 WELDNECK 150# - 600# RATING SCH 80	1	40726-010-04000 40726-020-04000		40728-007-04000 40728-014-04000		40729-010-04000 40729-025-04000	
	WELDNECK 900# - 1500# RATING WELDNECK 900# - 1500# RATING	1	40726-020-04000 40726-042-04000	D E	40728-026-04000 40728-024-04000	D E	40424-003-04000 40424-004-04000	D E
13	O-RING CHAMBER LID	1	40552-051-06000	C	40553-051-06000	C	40714-059-06000	
14	CHAMBER LID	1	40726-032-04000	C	40728-021-04000	C	40729-021-04000 40424-006-04000	A B
15	FLANGE 150# RF SCH 40	1	40552-001-04000		40553-001-04000		40554-001-04000	
	300# RF SCH 40	1	40552-002-04000		40553-002-04000		40554-002-04000	
	600# RF SCH 40 600# RF SCH 80	1	40552-005-04000 40552-003-04000		40553-004-04000 40553-006-04000		40554-003-04000 40554-005-04000	
	600# RTJ SCH 40 600# RTJ SCH 80 900# RF SCH 40	1	40552-016-04000 40552-017-04000 40552-014-04000		40553-040-04000 40553-041-04000		40554-032-04000 40551-033-04000	
	900# RF SCH 80 900# RF SCH 160 900# RTJ SCH 40	1	40552-009-04000 40552-007-04000 40552-020-04000		40553-010-04000		40554-007-04000	
	900# RTJ SCH 80 900# RTJ SCH 160 1500# RF SCH 80	1	40552-019-04000 40552-018-04000 40552-009-04000		40553-043-04000 40553-014-04000		40551-034-04000	
	1500# RF SCH 160 1500# RTJ SCH 80	1	40552-007-04000 40552-019-04000		40553-044-04000		40554-036-04000	
	1500# RTJ SCH 160	1	40552-018-04000					
16	1/2” STEEL PIPE PLUG	2	35364-004-04000		35364-004-04000		35364-004-04000	
17	PLASTIC BORE PLUGS	2	NCN		NCN		NCN	

NOTES: A) FOR 150# THROUGH 600# RATING
B) FOR 900# THROUGH 1500# RATING
C) FOR 150# THROUGH 1500# RATING
D) SCH 80
E) SCH 160

DIMENSIONAL DATA
MODEL 4042 SINGLE CHAMBER ORIFICE FITTINGS



FLANGEWELD TYPE SINGLE CHAMBER



WELDNECK TYPE SINGLE CHAMBER

MODEL 4042 SINGLE CHAMBER
DIMENSIONS—FLANGEWELD TYPE WITH RAISED FACE FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	CENTERLINE OF ORIFICE PLATE TO FACE AT END	CENTERLINE OF ORIFICE PLATE TO FACE AT END	OVERALL LENGTH FACE TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	APPROXIMATE WEIGHT, LB
	A	E	F	J	K	L	M	O	
FLANGEWELD TYPE, 150 LB. A.N.S.I. - RAISED FACE FLANGE - 285 PSI. C.W.P.									
2	2.067*	5-1/4	3	6-5/8	4	10-5/8	1/8	7	33
3	3.068*	6-3/8	6-3/4	7	4-1/8	11-1/8	1/8	9	57
4	4.026*	7-3/8	4-1/2	7-11/16	4-9/16	12-1/4	1/8	10-3/4	79
FLANGEWELD TYPE, 300 LB. A.N.S.I. - RAISED FACE FLANGE - 740 PSI. C.W.P.									
2	2.067*	5-1/4	3-1/4	6-7/8	4	10-7/8	1/8	7	36
3	3.068*	6-3/8	4-1/8	7-3/8	4-1/8	11-1/2	1/8	9	63
4	4.026*	7-3/8	5	8-1/16	4-9/16	12-5/8	1/8	10-3/4	89
FLANGEWELD TYPE, 600 LB. A.N.S.I. - RAISED FACE FLANGE -1480 PSI. C.W.P.									
2	2.067*	5-1/4	3-1/4	7-1/4	4	11-1/4	1/8	7	38
3	3.068*	6-3/8	4-1/8	7-3/4	4-1/8	11-7/8	1/8	9	63
4	4.026*	7-3/8	5-3/8	8-15/16	4-9/16	13-1/2	1/8	10-3/4	99
FLANGEWELD TYPE, 900 LB. A.N.S.I. - RAISED FACE FLANGE - 2220 PSI. C.W.P.									
2	1.939*	5-1/4	4-1/4	8-3/8	4	12-3/8	1/8	7	51
3	2.900*	6-3/8	4-3/4	8-1/2	4-1/8	12-5/8	1/8	9	79
4	3.826*	7-3/8	5-3/4	9-7/16	4-9/16	14	1/8	10-3/4	127
FLANGEWELD TYPE, 1500 LB. A.N.S.I. - RAISED FACE FLANGE - 3705 PSI. C.W.P.									
2	**	5-1/4	4-1/4	8-3/8	4	12-3/8	1/8	7	51
3	**	6-3/8	5-1/4	9-1/8	4-1/8	13-1/4	1/8	9	98
4	**	7-3/8	6-1/8	9-13/16	4-9/16	14-3/8	1/8	10-3/4	145

*AVAILABLE IN OTHER BORES
** BORE TO BE SPECIFIED

MODEL 4042 SINGLE CHAMBER
DIMENSIONS—FLANGEWELD TYPE WITH RING TYPE JOINT FLANGES

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	CENTERLINE OF ORIFICE PLATE TO FACE AT END	CENTERLINE OF ORIFICE PLATE TO FACE AT END	OVERALL LENGTH FACE TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	APPROXIMATE WEIGHT, LB
	A	E	F	J	K	L	M	O	
FLANGEWELD TYPE, 600 LB. A.N.S.I. - RING TYPE JOINT FLANGE -1480 PSI. C.W.P.									
2	2.067*	5-1/4	3 -1/4	7-5/16	4	11-5/16	1/8	7	38
3	3.068*	6-3/8	4-1/8	7-3/4	4-1/8	11-7/8	1/8	9	63
4	4.026*	7-3/8	5-3/8	8-15/16	4-9/16	13-1/2	1/8	10-3/4	99
FLANGEWELD TYPE, 900 LB. A.N.S.I. - RING TYPE JOINT FLANGE - 2220 PSI. C.W.P.									
2	1.939*	5-1/4	4-1/4	8-1/2	4	12-1/2	1/8	7	51
3	2.900*	6-3/8	4-3/4	8-5/8	4-1/8	12-3/4	1/8	9	79
4	3.826*	7-3/8	5-3/4	9-7/16	4-9/16	14	1/8	10-3/4	127
FLANGEWELD TYPE, 1500 LB. A.N.S.I. - RING TYPE JOINT FLANGE - 3705 PSI. C.W.P.									
2	**	5-1/4	4-1/4	8-1/2	4	12-1/2	1/8	7	51
3	**	6-3/8	5-1/4	9-1/8	4-1/8	13-1/4	1/8	9	98
4	**	7-3/8	6-1/8	9-13/16	4-9/16	14-3/8	1/8	10-3/4	145

*AVAILABLE IN OTHER BORES
** BORE TO BE SPECIFIED

MODEL 4042 SINGLE CHAMBER
DIMENSIONS—WELDNECK TYPE

SIZE	DIAMETER OF INTERNAL BORE	CENTERLINE TO TOP	CENTERLINE TO BOTTOM	CENTERLINE OF ORIFICE PLATE TO FACE AT END	CENTERLINE OF ORIFICE PLATE TO FACE AT END	OVERALL LENGTH FACE TO END	ORIFICE PLATE THICKNESS	OPERATING CLEARANCE FROM CENTER WITH CHAMBER LID OPEN	APPROXIMATE WEIGHT, LB
	A	E	F	J	K	L	M	O	
WELDNECK TYPE, 600 LB. A.N.S.I. -1480 PSI. C.W.P.									
2	2.067*	5-1/4	1-15/16	4	4	8	1/8	7	27
3	3.068*	6-3/8	2-1/2	4-1/8	4-1/8	8-1/4	1/8	9	45
4	4.026*	7-3/8	2-7/8	4-9/16	4-9/16	9-1/8	1/8	10-3/4	62
WELDNECK TYPE, 900 LB. A.N.S.I. - 2220 PSI. C.W.P.									
2	1.939*	5-1/4	1-15/16	4	4	8	1/8	7	27
3	2.900*	6-3/8	2-1/2	4-1/8	4-1/8	8-1/4	1/8	9	50
4	3.826*	7-3/8	2-7/8	4-9/16	4-9/16	9-1/8	1/8	10-3/4	76
WELDNECK TYPE, 1500 LB. A.N.S.I. - 3705 PSI. C.W.P.									
2	**	5-1/4	1-15/16	4	4	8	1/8	7	27
3	**	6-3/8	2-1/2	4-1/8	4-1/8	8-1/4	1/8	9	50
4	**	7-3/8	2-7/8	4-9/16	4-9/16	9-1/8	1/8	10-3/4	76

*AVAILABLE IN OTHER BORES
** BORE TO BE SPECIFIED

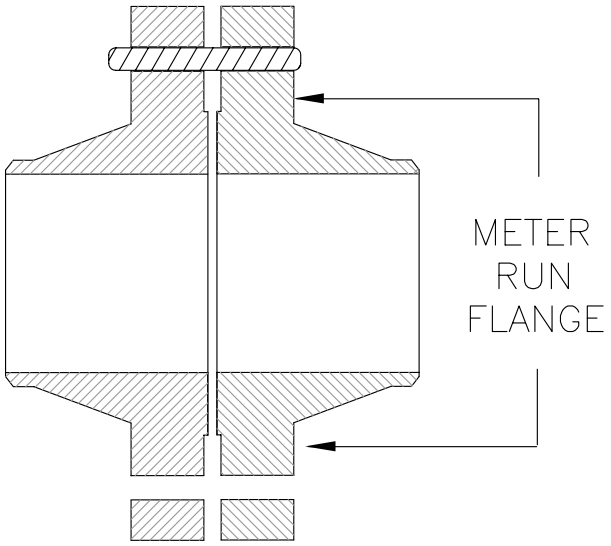
Meter Runs

The meter runs are fabricated by trained manufacturing personnel with complete facilities for machining, welding, gauging and inspection. This produces a product with quality and metering accuracy not possible with field-fabricated units.

All meter runs are factory-aligned and welded with special equipment that guarantees a straight, smooth meter run without defects. Standard lengths meet AGA/API requirements.

Meter Run Alignment

Orifice fitting to meter run alignment can be specified with dowel pins. This option assures proper bore alignment.

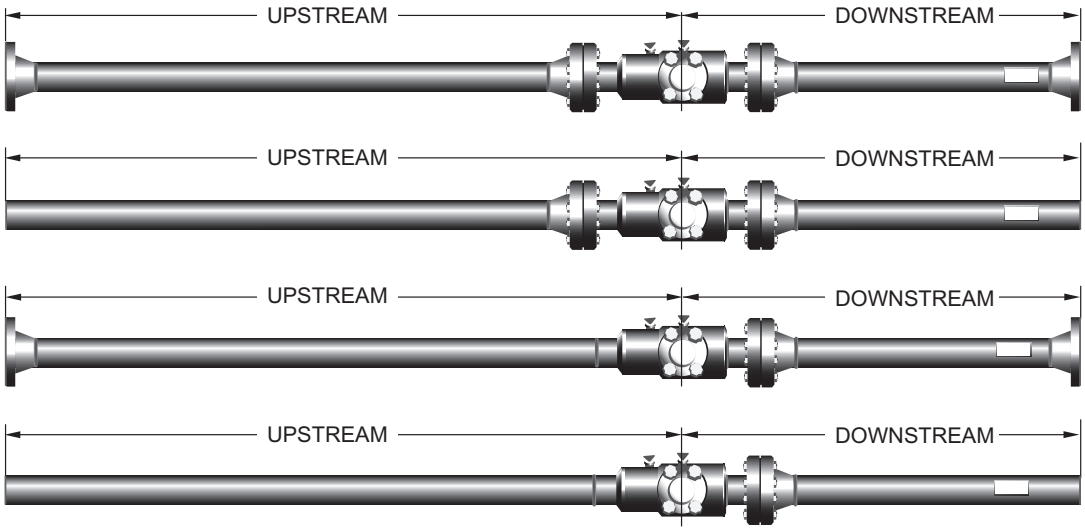


Technical Data

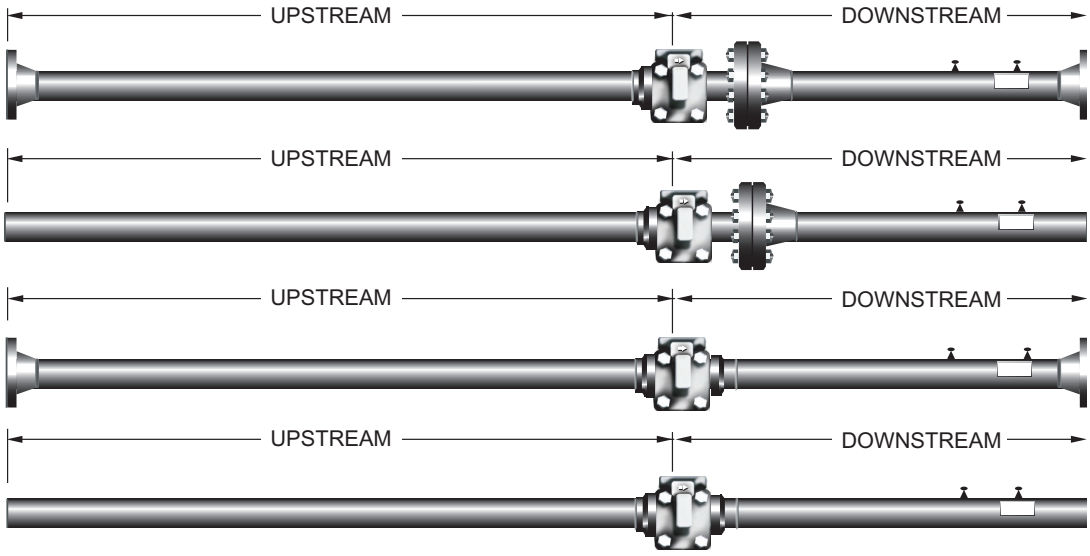
METER RUN I.D. FOR NOMINAL DIMENSIONS				
SCH	2”	3”	4”	6”
40	2.607	3.068	4.026	6.065
80	1.939	2.900	3.826	5.761
160	1.687	2.624	3.438	5.187

ANSI Rating	Working Pressure (psi)	Test Pressure (psi)
150	285	450
300	740	1125
600	1480	2225
900	2220	3350
1500	3705	5575
TEMPERATURE: -20°F TO 100°F		

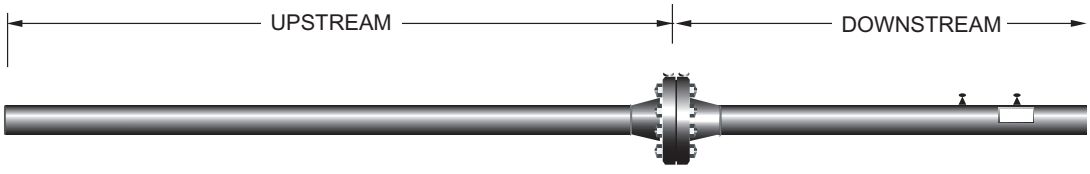
MODEL 4055 DUAL CHAMBER METER RUNS



MODEL 4042 SINGLE CHAMBER METER RUNS



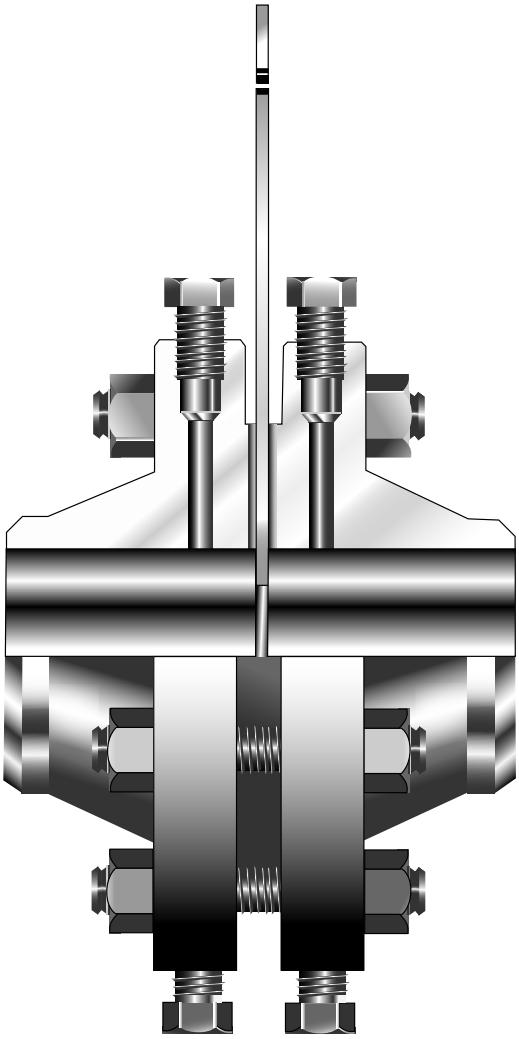
ORIFICE FLANGE UNION METER RUNS



NOTES: METER RUNS CAN BE MANUFACTURED TO SPECIFIC CUSTOMER REQUIREMENTS. METER RUNS CAN BE SUPPLIED WITH THREADOLETS FOR 1/2”, 3/4” AND 1” NPT AND ANY COMBINATION OF BEVELED FOR WELDING OR FLANGED ENDS.

Orifice Flange Unions

Orifice flange unions are available in 300 lb. ANSI through 2500 Ib. ANSI. They are available in SA 105N, SA350 LF2, 304 ST/STL, 316 ST/STL or MONEL materials. All flanges conform to the ANSI B16.5 Flange Piping Code. All flanges are machined to close tolerances and are carefully inspected before shipment. Orifice flange assemblies are provided with studs, nuts, gaskets, jack screws and pipe plugs.



Paddle Type Orifice Plates

Note: Paddle type orifice plates must be ordered separately.

NuFlo paddle type orifice plates are designed for use between orifice flange unions. The line size, flange rating, material and bore size are stamped on the handle. Paddle plates are available in type 304 or 316 stainless steel. Other materials are available on special order.

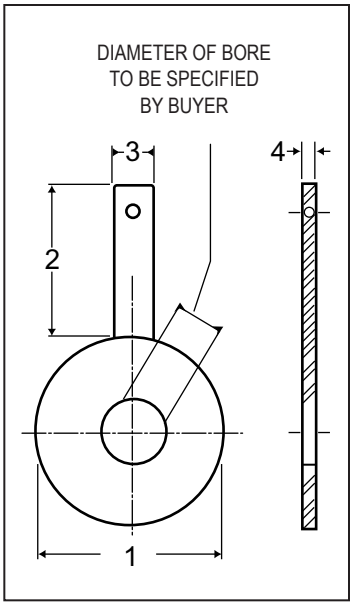
When Ordering, Specify:

- Quantity
- Size, flange rating, pipe schedule
- Material (flange, studs, nuts and gaskets)
- Orifice bore size
- Orifice plate thickness
- Orifice plate material

Paddle Plate Dimensions

	300 lb ANSI	600 lb ANSI	For All Pressure Ratings 300 - 1500 lb ANSI		
SIZE *	1	1	2	3	4
2”	4-3/8”	4-3/8”	4”	1”	1/8”
3”	5-7/8”	5-7/8”	4”	1-1/4”	1/8”
4”	7-1/8”	7-5/8”	4”	1-1/4”	1/8”

*Other sizes available on request



Orifice Plate Assembly

The orifice plate retainer assembly is used in both the dual and single chamber orifice fittings. The orifice retainer and chamber lid are designed to assure the center alignment of orifice bore with the line bore. The chamber lid cannot be closed without centering the orifice in the correct position. If the plate is not correctly centered, closing the lid will align the plate automatically. The plate retainer and the dovetail ring are nickel plated for corrosion resistance.

The orifice retainer, dovetail ring and O-ring together hold the orifice plate in a rigid position and perpendicular to the bore at all times.

Universal orifice plates are stocked in 1/8-in. increments, beginning at 0.125 inch. The orifice bore size and outlet are clearly etched on each plate. All AGA/API requirements are specifically met.

The NuFlo orifice plate is interchangeable with other universal type plates. Standard orifice plates are constructed of 316 stainless steel; however, they are available in other material upon special request. Each orifice plate has a 15-30 micro-inch finish.

Universal Orifice Plates and Plate Dimensions

SIZE	2”	3”	4”	6”	NOTES
PLATE RETAINERS	40552-062-04000 40552-069-04000	40553-062-04000 40553-065-04000	40554-063-04000 40554-065-04000	40556-076-04000 40556-083-04000	150 - 600# RATING 900 - 1500# RATING
DOVETAIL RING	40712-001	40713-006	40714-010	40706-080-04000	
O-RING	40700-005-06000 40552-059-04000	40702-025-06000 40553-060-06000	40714-052-06000 40554-059-06000	40706-098-06000 40556-074-06000	150 - 600# RATING 900 - 1500# RATING

	Material: 304 S.S.	Material: 316 S.S.
Size	Part Number	Part Number
2”	40700-022	40552-052
3”	40702-003	40553-055
4”	40704-091	40554-049
6”	40706-023	40556-046
8”	40558-061	40558-070
10”	40540-012	40540-024

Size	Plate Thickness	Plate Dlameter
2”	1/8	2.437
3”	1/8	3.437
4”	1/8	4.406
6”	1/8	6.437
8”	1/8	8.437
10”	1/8	10.687

Straightening Vanes

The use of straightening vanes in meter runs serves a twofold purpose: (1) the turbulence often created in a complex piping system is straightened and smoothed to a normal flow pattern and (2) the amount of straight pipe required preceding an orifice is reduced. NuFlo offers both flanged and pin type straightening vanes.

Vanes are available with carbon steel, 304 or 316 stainless steel tubing welded together and securely attached into the meter run. The tubes are reamed as thin as is practical at both ends and are constructed so as to minimize the possibility of vibration. All vanes are manufactured according to the latest AGA/API specifications.

FLANGE TYPE

PIN TYPE

VANE MODEL	2” Carbon Steel	2” Stainless Steel	3” Carbon Steel	3” Stainless Steel	4” Carbon Steel	4” Stainless Steel	6” Carbon Steel	6” Stainless Steel
Flange Type	40807	40807	40813	40813	40814	40814	40818	40818
Pin Type	40806	40806	40812	40812	40815	40815	40819	40819
Vane Length	6”		8”		10”		12”	

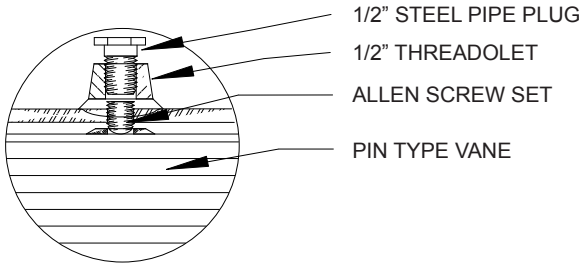
Other sizes available on request.
When ordering specify: part number, type of material and pipe bore size.

Installation

The flange type straightening vane is held in place by a flange ring between two pipe flanges.

The pin type straightening vane is held in place by an allen set screw. The set screw seats into a countersunk hole in the center of a welded pad that is welded to the straightening vane itself. The tapped hole in the pipe is sealed off by welding a threadolet around the hole. A pipe plug is installed into the threadolet.

PIN TYPE INSTALLATION



AGA/API MINIMUM LENGTHS FOR METER RUN WITH FLANGE TAPS USING .70 BETA RATIO (AGA REP. NO. 3. -ANSI/API MPMS 14.3.2 1991)

FIGURE 3A

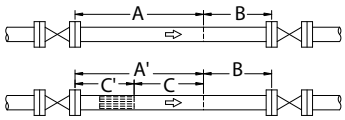


FIGURE 3B

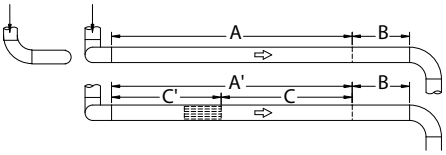


FIGURE 3C

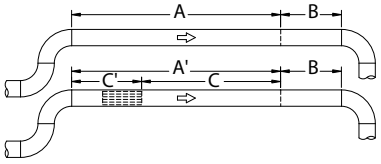


FIGURE 3D

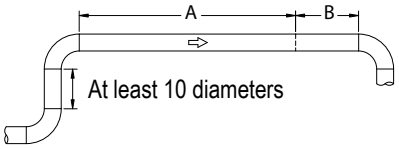
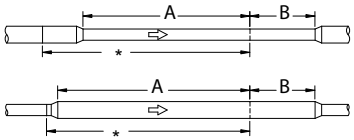


FIGURE 3E



* AS REQUIRED BY PRECEDING FITTING.

NORMAL PIPE SIZE	2”	3”	4”	6”
		AGA FIGURE 3A-Fitting or Regulator		
A	78”	117”	155”	233”
A’	31”	47”	62”	93”
B	21”	25”	30”	38”
C	13”	20”	26”	39”
C’	18”	27”	36”	54”
		AGA FIGURE SB-Two Ells in Different Planes		
A	63”	95”	126”	189”
A’	28”	42”	55”	83”
B	21”	25”	30”	38”
C	13”	20”	26”	39”
C’	15”	22”	29”	44”
		AGA FIGURE 3C-Two Ells in Same Plane		
A	38”	57”	75”	113”
A’	25”	37”	49”	74”
B	21”	25”	30”	38”
C	13”	20”	26”	39”
C’	12”	17”	23”	34”
		AGA FIGURE 3D		
A	28”	42”	56”	84”
A’	--	--	--	--
B	21”	25”	30”	38”
C	--	--	--	--
C’	--	--	--	--
		AGA FIGURE 3E Reducer		
A	25”	37”	49”	74”
A’	--	--	--	--
B	21”	25”	30”	38”
C	--	--	--	--
C’	--	--	--	--

Note 1: For Pipe Taps: A, A’ and C’ should be increased by 2 pipe diameters.
Note 2: In Figure 3B, when two ells are closely preceded by a third which is not in the same plane as the middle or second ell, the piping requirements shown by A should be doubled.

DATA REQUIREMENTS FOR ORIFICE BORE CALCULATIONS

	Plate Type:	Paddle ☐	Universal ☐	Other _____		
		Concentric ☐	Other ☐			
	Material:	316 ☐	304 ☐	Other _____		
	Bore:	Maximum Rate ☐	Nearest 1/8" ☐			
	Tap Location:	Flange ☐	Corner ☐			
		Other _____	Up _____	Down _____		
	Flange Rating: _____					
GENERAL	Tag No.					
	Line No.					
	Fluid					
	Flow Temperature °F					
	Flow Pressure psig					
	Actual Orifice I.D.					
	Line Flange I.D.					
	Meter Type (Mercury or Dry)					
	S. G. of Seal @ Ambient T.					
	Diff. Range H_2O					
	Static Range psig					
	Chart or Scale Range					
	Chart Multiplier					
LIQUIDS	Flow Units					
	Maximum Flow					
	Normal Flow					
	Specific Gravity @ 60°F					
	Specific Gravity @ Flowing Cond.					
	Viscosity cp @ Flowing Cond.					
VAPOR/GAS	Flow Units					
	Maximum Flow					
	Normal Flow					
	Specific Gravity					
	Molecular Weight					
	Flowing Density lbs/ft^3					
	Barometric Pressure or Elev. of Plant Site (approx.)					
	Pressure Base					
	Temperature Base					
	Supercom Factor					
	@ Flowing T. & P.					
	Viscosity cp @ Flowing T. & P.					
STEAM	Flow Units					
	Maximum Flow					
	Quality % or Superheat °F					

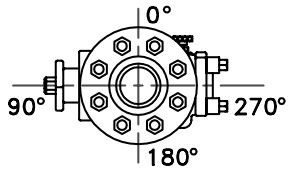
NUFLO PRODUCTS MODEL 4055 DUAL CHAMBER METER RUN ORDERING FORM

DATE _____ CUSTOMER _____ TAG _____ ASSEMBLY NO _____

DISTRICT _____ QUANTITY ORDERED _____ L.S.D. _____ SHIPPING ADDRESS _____

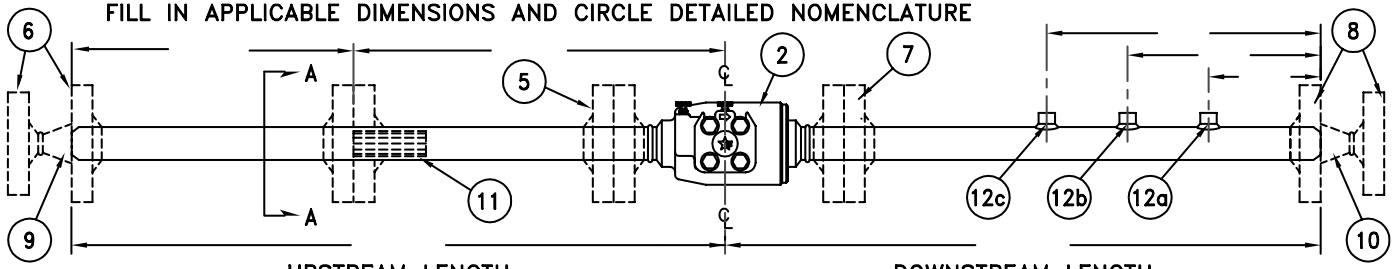
DESIRED SHIPPING DATE _____ ORDERED BY _____ END USER _____

SECTION A–A



DUAL CHAMBER

FILL IN APPLICABLE DIMENSIONS AND CIRCLE DETAILED NOMENCLATURE



UPSTREAM LENGTH DOWNSTREAM LENGTH

1. Nominal Size Meter Run (inches)
   2 - 3 - 4 - 6

2. Type of orifice fitting: Dual Chamber

3. Pressure Rating (ANSI)
   150 - 300 - 600 - 900 - 1500

4. Wall Schedule of Meter Run

   40 - 80 - 160

5. Upstream Connection to Orifice Fitting
   Welded - RF Flange - RTJ Flange
   Threaded - Socket Weld

6. Upstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

7. Downstream Connection to Orifice Fitting
   Welded - RF Flange - RTJ Flange
   Threaded - Socket Weld

8. Downstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

9. Size of Upstream Reducer/ Elbow if used,
   _____ Inches,
   None - Threaded - Beveled - Elbow @ ___

10. Size of Downstream Reducer/ Elbow if used
    _____ Inches.
    None - Threaded - Beveled- Elbow @ ___

11. Straightening Vanes/ Flow Conditioner
    None - Pin Type - Flange Type
    Carbon Steel - Stainless Steel

12. Size of Downstream Couplings if used.
    Numbered from outer end of downstream tube
    a. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    b. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    c. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.

    Orientation
    a. 45° or Vertical a. _____
    b. 45° or Vertical b. _____
    c. 45° or Vertical c. _____

13. Size of installed Orifice Plate,
    _____ Inches.

14. Install Thermowell: Yes No
    Description _____

15. Special Coating: None/ Prime/ Paint
    _____

16. Are MTR'S/ Calibration Sheets desired with Meter Run
    Yes No

17. Purchase order No. _____

METER TUBE I.D. FOR NOMINAL DIMENSIONS				
SCH.	2"	3"	4"	6"
40	2.067	3.068	4.026	6.065
80	1.939	2.900	3.826	5.761
160	1.687	2.624	3.438	5.187

ANSI RATING	WORKING PRESSURE (PSI)	TEST PRESSURE (PSI)
150	285	450
300	740	1125
600	1480	2225
900	2220	3350
1500	3705	5575
TEMPERATURE: –20° F TO 100° F		

SPECIAL INSTRUCTIONS:

TYPE OF SERVICE: _____

SERVICE TEMP.: _____

X RAY: YES ☐ NO ☐

M.P.I. YES ☐ NO ☐

PWHT: YES ☐ NO ☐

HYDRO REPORTS YES ☐ NO ☐

API/AGA–3 (2000) YES ☐ NO ☐

AGA FIGURE#: _____ BETA: _____

WELD PROCEDURES: TOL'S: _____

WELD PROCEDURES: PIPE,BODY,FLANGE: _____

OTHER: _____

FORM NUMBER: NS–3A
REVISION NUMBER: 3
REVISION DATE: 10/26/04

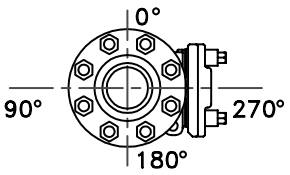
NUFLO PRODUCTS MODEL 4042 SINGLE CHAMBER METER RUN ORDERING FORM

DATE _____ CUSTOMER _____ TAG _____ ASSEMBLY NO _____

DISTRICT _____ QUANTITY ORDERED _____ L.S.D. _____ SHIPPING ADDRESS _____

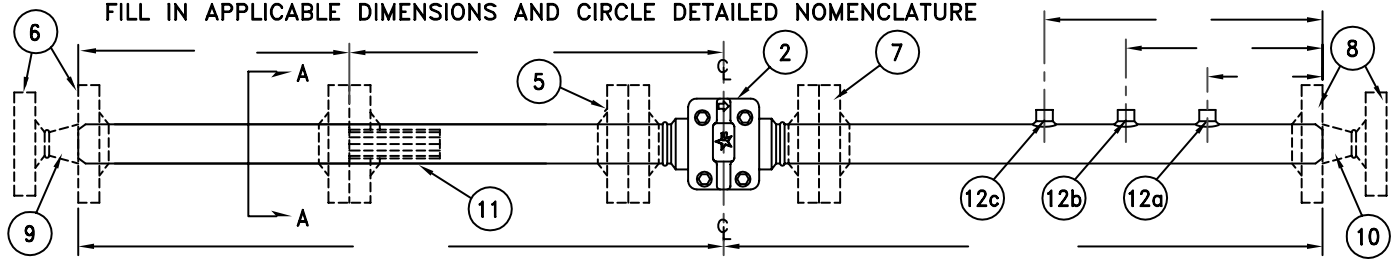
DESIRED SHIPPING DATE _____ ORDERED BY _____ END USER _____

SECTION A–A



SINGLE CHAMBER

FILL IN APPLICABLE DIMENSIONS AND CIRCLE DETAILED NOMENCLATURE



UPSTREAM LENGTH DOWNSTREAM LENGTH

1. Nominal Size Meter Run (inches)
   2 - 3 - 4

2. Type of orifice fitting: Single Chamber

3. Pressure Rating (ANSI)
   150 - 300 - 600 - 900 - 1500

4. Wall Schedule of Meter Run

   40 - 80 - 160

5. Upstream Connection to Orifice Fitting
   Welded - RF Flange - RTJ Flange
   Threaded - Socket Weld

6. Upstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

7. Downstream Connection to Orifice Fitting
   Welded - RF Flange - RTJ Flange
   Threaded - Socket Weld

8. Downstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

9. Size of Upstream Reducer/Elbow if used,
   _____ Inches,
   None - Threaded - Beveled - Elbow @ ___

10. Size of Downstream Reducer/ Elbow if used
    _____ Inches.
    None - Threaded - Beveled - Elbow @ ___

11. Straightening Vanes/ Flow Conditioner
    None - Pin Type - Flange Type
    Carbon Steel - Stainless Steel

12. Size of Downstream Couplings if used.
    Numbered from outer end of downstream tube
    a. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    b. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    c. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.

    Orientation
    a. °45° or Vertical a. _____
    b. °45° or Vertical b. _____
    c. °45° or Vertical c. _____

13. Size of installed Orifice Plate,
    _____ Inches.

14. Install Thermowell: Yes No
    Description _____

15. Special Coating: None/ Prime/ Paint
    _____

16. Are MTR'S/ Calibration Sheets desired with Meter Run
    Yes No

17. Purchase order No. _____

METER TUBE I.D. FOR NOMINAL DIMENSIONS			
SCH.	2"	3"	4"
40	2.067	3.068	4.026
80	1.939	2.900	3.826
160	1.687	2.624	3.438

ANSI RATING	WORKING PRESSURE (PSI)	TEST PRESSURE (PSI)
150	285	450
300	740	1125
600	1480	2225
900	2220	3350
1500	3705	5575
TEMPERATURE: –20 °F TO 100 °F		

SPECIAL INSTRUCTIONS:

TYPE OF SERVICE:

SERVICE TEMP.:

X RAY:	YES ☐	NO ☐
M.P.I.	YES ☐	NO ☐
PWHT:	YES ☐	NO ☐
HYDRO REPORTS	YES ☐	NO ☐
API/AGA–3 (2000)	YES ☐	NO ☐

AGA FIGURE#: BETA:

WELD PROCEDURES: TOL'S:

WELD PROCEDURES: PIPE,BODY,FLANGE:

OTHER:

FORM NUMBER: NS–3B
REVISION NUMBER: 3
REVISION DATE: 10/26/04

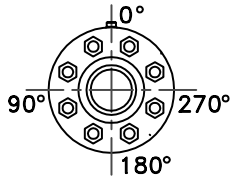
NUFLO PRODUCTS ORIFICE FLANGE METER RUN ORDERING FORM

DATE _____ CUSTOMER _____ TAG _____ ASSEMBLY NO _____

DISTRICT _____ QUANTITY ORDERED _____ VIA _____ SHIPPING ADDRESS _____

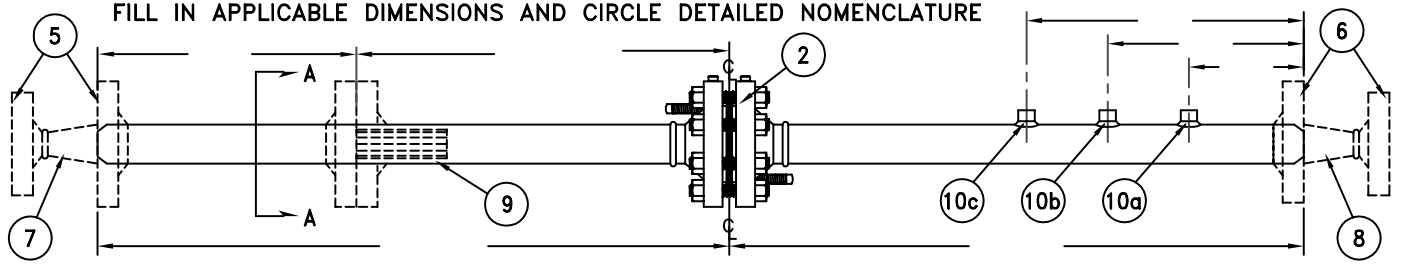
DESIRED SHIPPING DATE_____ ORDERED BY_____ END USER _____ _____

SECTION A–A



ORIFICE FLANGE

FILL IN APPLICABLE DIMENSIONS AND CIRCLE DETAILED NOMENCLATURE



UPSTREAM LENGTH DOWNSTREAM LENGTH

1. Nominal Size Meter Run (inches)
   1 - 2 - 3 - 4 - 6 - 8 - 10

2. Type of orifice fitting: Orifice Flange

3. Pressure Rating (ANSI)
   150 - 300 - 600 - 900 - 1500 - 2500

4. Wall Schedule of Meter Run

   40 - 80 - 160

5. Upstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

6. Downstream Outer End of Meter Run
   Beveled - RF Flange - RTJ Flange
   Reducer - Threaded - Elbow @ ___

7. Size of Upstream Reducer/ Elbow if used,
   _____ Inches,
   None - Threaded - Beveled - Elbow @ ___

8. Size of Downstream Reducer/ Elbow if used
   _____ Inches.
   None - Threaded - Beveled - Elbow @ ___

9. Straightening Vanes/ Flow Conditioner
   None - Pin Type - Flange Type
   Carbon Steel - Stainless Steel

10. Size of Downstream Couplings if used.
    Numbered from outer end of downstream tube
    a. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    b. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.
    c. 1/2" 3/4" - 1" - None - 3000 Lbs. - 6000 Lbs.

	Orientation
a. 45° or Vertical	a. _____
b. 45° or Vertical	b. _____
c. 45° or Vertical	c. _____

11. Size of installed Orifice Plate,
    _____ Inches.

12. Install Thermowell: Yes No
    Description _____

13. Special Coating: None/ Prime/ Paint
    _____

14. Are MTR'S/ Calibration Sheets desired with Meter Run
    Yes No
    _____

15. Purchase order No.

METER TUBE I.D. FOR NOMINAL DIMENSIONS							
SCH.	2"	3"	4"	6"	SCH.	8"	10"
40	2.067	3.068	4.026	6.065	30	8.071	10.136
80	1.939	2.900	3.826	5.761	40	7.981	10.020
160	1.687	2.624	3.438	5.187	80	7.625	9.564

ANSI RATING	WORKING PRESSURE (PSI)	TEST PRESSURE (PSI)
150	285	450
300	740	1125
600	1480	2225
900	2220	3350
1500	3705	5575
2500	6170	9275
TEMPERATURE: –20 °F TO 100 °F		

SPECIAL INSTRUCTIONS:

TYPE OF SERVICE:

SERVICE TEMP.:

X RAY: YES ☐ NO ☐

M.P.I. YES ☐ NO ☐

PWHT: YES ☐ NO ☐

HYDRO REPORTS YES ☐ NO ☐

API/AGA–3 (2000) YES ☐ NO ☐

AGA FIGURE#: BETA:

WELD PROCEDURES: TOL'S:

WELD PROCEDURES: PIPE, FLANGE:

OTHER:

FORM NUMBER: NS–3C
REVISION NUMBER: 3
REVISION DATE: 10/26/04

STANDARD MATERIALS FOR PARTS USED ON MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS

ITEM	MIN -20°F (-29°C)		MIN -50°F (-45°C)		REMARKS
	SWEET SERVICE	(H_2S) SOUR SERVICE	SWEET SERVICE	(H_2S) SOUR SERVICE	
1	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
2	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
3	AISI 4130	AISI 4130	AISI 4130	AISI 4130	W/NYLON SEAT & VITON, HSN O-RING & HANDLES
4	ALUMINUM	316 S.S	ALUMINUM	316 S.S	
5	SPLIT	SPLIT STL	SPLIT STL	SPLIT STL	
6	AISI 1020	AISI 1020	AISI 1020	AISI 1020	
7	N/A	N/A	N/A	N/A	
8	AISI 1020 CSTG.	AISI 1020 CSTG.	AISI 1020 CSTG.	AISI 1020 CSTG.	
9	AISI 4140	AISI 4140	AISI 4140	AISI 4140	HRc 18-22
10	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ON 4” AND 6” SIZE ONLY
11	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ON 4” AND 6” SIZE ONLY
12	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	70 DURO
13	AISI 4140	AISI 4140	AISI 4140	AISI 4140	HRc 18-22
14	TEFLON®	TEFLON®	TEFLON®	TEFLON®	
15	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	70 DURO
16	N/A	N/A	N/A	N/A	ON 4” SIZE ONLY
17	VITON-B, HSN	VITON-B, HSN	VITON-B, HSN	VITON-B, HSN	70 DURO
18	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	
19	SAE1075	INCONEL X 750	SAE 1075	INCONEL X 750	INCONELX-TEMPERED
20	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ELECTROLESS NI-PLATED 0.0027SIDE
21	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
22	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ELECTROLESS NI-PLATED
23	DISOGRIN, VITON, HSN OR TEFLON®	DISOGRIN, VITON, HSN OR TEFLON®	DISOGRIN, VITON, HSN OR TEFLON®	DISOGRIN, VITON, HSN OR TEFLON®	DISOGRIN, VITON, HSN OR TEFLON®
24	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-352 GR. LCC	ASTM SA-352 GR. LCC	NORMALIZED & TEMPERED TO 18-22 HRc RANGE. IMPACT TEST @ -50°F (-45°C) FOR LOW TEMP SERVICE
25	1015-18 STEEL	1015-18 STEEL	1015-18 STEEL	1015-18 STEEL	
26	ASTM SA-487 CLASS 4N	ASTM SA-487 CLASS 4N	ASTM SA-487 CLASS 4N	ASTM SA-487 CLASS 4N	NT TO HRc 18-22 RANGE ELECTRO-LESS NI-PLATED 0.002”/SIDE
27	1015-18 STEEL	1015-18 STEEL	1015-18 STEEL	1015-18 STEEL	
28	ASTM SA-105 (N)	ASTM SA-105 (N)	ASTM SA-350 LF2	ASTM SA-350 LF2	HARDNESS RANGE BETWEEN 18-22 HRc IMPACT TEST @ -50°F (-45°C) FOR LOW TEMP SERVICE
29	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-352 GR. LCC	ASTM SA-352 GR. LCC	NT TO 18-22 HRc RANGE. IMPACT TEST @-50°F (-45°C) FOR LOW TEMP SERVICE
30	VITON - B. HSN	VITON - B. HSN	VITON - B. HSN	VITON - B. HSN	70 DURO
31	ASTM SA-193 B7	ASTM SA-193 B7	ASTM SA-320 L7M	ASTM SA-320 L7M	
32	AISI 4130	AISI 4130	SA-320 L7	SA-320 L7	
33	AISI 4140	AISI 4140	SA-320 L7	SA-320 L7M	
34	ASTM SA-194 2H	ASTM SA-194 2HM	ASTM SA-320 L7	ASTM SA-320 L7M	
35	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	VITON - B, HSN	70 DURO
36	1015-18 RING W/MOLY-TEFLON® SEAL INSERT VITON, HSN O-RING				
38	ASTM SA-105 (N)	ASTM SA-105 (N)	ASTM SA-350 LF2	ASTM SA-350 LF2	
39	ASTM SA-36	ASTM SA-36	ASTM SA-36	ASTM SA-36	GA-12 PLATE

STANDARD MATERIALS FOR PARTS USED ON MODEL 4055 DUAL CHAMBER ORIFICE FITTINGS (cont'd)

ITEM	MIN -20°F (-29°C)		MIN -50°F (-45°C)		REMARKS
	SWEET SERVICE	(H_2S) SOUR SERVICE	SWEET SERVICE	(H_2S) SOUR SERVICE	
40	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PLASTIC
41	ASTM SA-105 (N)	ASTM SA-105 (N)	ASTM SA-350 LF2	ASTM SA-350 LF2	AVAILABLE IN 316 S.S
45	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
46	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
47	NYLON	NYLON	NYLON	NYLON	
48	ASTM SA-36	ASTM SA-36	ASTM SA-36	ASTM SA-36	GA-12 PLATE

NOTES: 1. MTR'S. HEAT TREAT CHARTS, AND OTHERS NDT RECORDS AVAILABLE UPON REQUEST.
2. WELDING PROCEDURES IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE SECTION IX LATEST EDITION AND ADDENDA FOR GMAW AND SMAW PROCESSES. ALL POSITION, APPROVED BY ALBERTA BOILERS BRANCH, ARE AVAILABLE AT NUFLO'S EDMONTON PLANT. WELDS ARE MADE ON FITTINGS WHEN FLANGEWELD, OR FLANGED ORIFICE FITINGS OR COMPLETE METER RUNS ARE ORDERED.

STANDARD MATERIALS FOR PARTS USED ON MODEL 4042 SINGLE CHAMBER ORIFICE FITTINGS

ITEM	MIN -20°F (-29°C)		MIN -50°F (- 45°C)		REMARKS
	SWEET SERVICE	(H_2S) SOUR SERVICE	SWEET SERVICE	(H_2S) SOUR SERVICE	
1	ASTM SA-193 B7	ASTM SA-193 B7M	ASTM SA-320 L7	ASTM SA-320 L7M	
2	SPLIT STL.	SPLIT STL.	SPLIT STL.	SPLIT STL.	
3	ALUMINUM	316 S.S.	ALUMINUM	316 S.S.	
4	ASTM SA-194 2H	ASTM SA-194 2HM	ASTM SA-320 L7	ASTM SA-320 L7M	
5	AISI 4130	AISI 4130	SA-320 L7	SA-320 L7M	
6	AISI 4140	AISI 4140	SA-320 L7	SA-320 L7M	
7	PLASTIC	PLASTIC	PLASTIC	PLASTIC	
8	316 S.S.	316 S.S.	316 S.S.	316 S.S.	
9	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ELECTROLESS NI-PLATED 0.002"/ SIDE
10	DISOGRIN, VITON, HSN OR TEFLON	DISOGRIN, VITON, HSN OR TEFLON	DISOGRIN, VITON, HSN OR TEFLON	DISOGRIN, VITON, HSN OR TEFLON	
11	AISI 4130	AISI 4130	AISI 4130	AISI 4130	ELECTROLESS NI-PLATED 0.002"/ SIDE
12	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-352 GR. LCC	ASTM SA-352 GR. LCC	NORMALIZED & TEMPERED TO 18-22 Hrc RANGE, IMPACT TEST @ -50°F (-45°C) FOR LOW TEMP SERVICE
13	VITON-B, HSN	VITON-B, HSN	VITON-B, HSN	VITON-B, HSN	70 DURO
14	ASTM SA-216 GR. WCB	ASTM SA-216 GR. WCB	ASTM SA-352 LCC	ASTM SA-352 LCC	NORMALIZED & TEMPERED TO 18-22 Hrc RANGE, IMPACT TEST @ -50°F (-45°C) FOR LOW TEMP SERVICE
15	ASTM SA-105(N)	ASTM SA-105(N)	ASTM SA-350 LF2	ASTM SA-350 LF2	
16	ASTM SA-105(N)	ASTM SA-105(N)	ASTM SA-350 LF2	ASTM SA-350 LF2	
17	PLASTIC	PLASTIC	PLASTIC	PLASTIC	

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